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BOTANICAL SERIES

VOLUME I.

CHICAGO, U. S. A.
1895–1902.*

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*For date of issue of each paper see Table of Contents.

FIELD COLUMBIAN MUSEUM

PUBLICATION 15.

Botanical Series. Vol. 1, No. 3.

CONTRIBUTION II
TO THE
COASTAL AND PLAIN FLORA
OF
YUCATAN.

BY

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CHICAGO, U. S. A.
December, 1896.

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Second Contribution to the Coastal and Plain Flora of Yucatan.

CHARLES F. MILLSPAUGH, M.D.

That portion of Yucatan considered in these contributions is peculiar in its biologic characters, differing essentially from the surrounding region, especially in its flora. Here all plants have a desiccated appearance due to their struggle against drought, while in the neighboring areas the wealth of exuberant vegetation is marked. The cause is readily understood when we note the great difference that exists between the orographic characters of the peninsula and those of the neighboring countries—Honduras, Guatemala, Chiapas and Tabasco. In Chiapas there are numerous mountain chains of considerable altitude formed of igneous and sedimentary rocks; in Yucatan this character is entirely absent; the great undulous plains being of calcareous formation, simply and slightly inclined toward the north, their surfaces studded with a vast multitude of mere hillocks and depressions. In Tabasco, Guatemala and Honduras true mountains exist. Passing from Belize, after having crossed the boundary Rio Hondo, one climbs two broad but not very high ridges, reaching the first plateau of the central table-land whereon is situated the village of Teaiché at 160 meters above the sea level. The second plateau about Ixconconal has an altitude of 250 meters, the highest plain in the region. Descending to the neighborhood of Halatun (120 met) one reaches the low lands about Iturbide (110 met.) and Yaxha (100 met.), and after passing down to other ridges of less altitude but considerable breadth one reaches the city of Tikul (25 met.) and the low lands that extend over the whole northern and eastern portion of the peninsula, the region embraced in these contributions.

This peculiar orographic difference between the peninsula and its neighboring states is more than equaled by the hydrographic conditions. While all the bordering country is well watered by large living streams, many of them navigable for long distances inland, the plains of Yucatan have no surface water whatever, the porosity of the coralline floor being in nearly all parts so great that whatever rain falls quickly filters into cavities, caverns and faults beneath the surface. It is on this account that throughout the region the only residual supply of water available to vegetation is held in the peculiar sartenejas, aguadas and cenotes.

The sartenejas (Maya, Akalché) are depressions in the floor of the plain, of various sizes, and from a few ounces to several hogsheads capacity, at the bottom of which sufficient marly soil has been formed to retain such water as falls into them. These soon dry up after the rainy season, and their vegetation lies dormant. The aguadas are simply larger sartenejas, usually of circular outline and from 50 to 100 feet in diameter. These retain stagnant water and maintain a growth of mud plants, such as sedges, flags and the like, throughout the year. The cenotes (Maya Ɔonot.*) are deep perpendicular-walled, nearly circular wells, penetrating the floor of the plain and opening into an abundant supply of clear cool water, saturated with carbonate of lime. These cenotes are from a few feet to a hundred yards or more in diameter, and from 30 to 200 feet deep to the water level, their frequence and extent proving that this great plain is as freely watered far below its surface as most countries are above. The interesting sartenejas are rare, though they are said to be frequent in the forests of the south and southwestern regions where the undulation of the plain is more pronounced, they may rightfully be termed the only water supply to the vegetation of the peninsula, though the cenotes assist somewhat in the mists that arise from them during the night, and in the crevices leading to their waters through which creep the roots of the larger trees near by.

These conditions having been ever present in the geological history of this great plain, it is doubtful if there ever has been more forest or low vegetation than at present. Its plants are not therefore adapting themselves to changed conditions of moisture, but having come into such existing conditions are attempting to correlate themselves with their surroundings.

The year 1895, in which the principal collections here catalogued were made, was the driest period known on the peninsula for over half a century. During that year the dry season, usually a period of four months, was extended to nine, leaving but three months of partial rain. Dr. Gaumer reports that on this account many plants did

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*The inverted letter Ɔ is pronounced in Maya *tz*.

not bloom at all, and many that did flower never came to fruit. His collection, however, contained about 600 numbers, obtained mostly in the neighborhood of Izamal, in the interior, and at the town and port of Silam, on the northern coast. This collection so far as classified, forms the basis of this publication, which also includes a century of medicinal plants communicated for determination by Prof. H. H. Rusby of New York, having been collected by one of his pharmaceutical students, Sr. Porfirio Valdez of Merida*; a collection made by the author at Progreso, Merida, and Tikul in 1887; and a few plants of the Allison V. Armour Expedition of 1895 that had not been satisfactorily determined at the time of the first contribution.

The complete set was taken to the Gray Herbarium and there compared with the collections of that institution. The arduousness of this work was materially lessened by the many kindnesses of the director, Prof. B. L. Robinson, and of his staff, Mr. J. M. Greenman, Mr. Merritt L. Fernald, and Miss Day, to each of whom, together with the specialists credited in the body of this publication, the hearty thanks of the author are due.

As in the first contribution all species not before credited to the region, appear in black-face type. Species in small capitals are those re-discovered. The Yucatec and Spanish vulgarisms appear in italics, the Maya in black face. Plant numbers in the body type are those of Dr: George F. Gaumer, 1895. This contribution adds one hundred and twenty genera, and two hundred and seventy-two species to our knowledge of the flora of the peninsula, of which one genus and thirteen species are new.

From the serial plant numbers of Dr. Schott during the Yucatan portion of his Central American trip, it is evident that he collected at least 900 plants in this region. These plants were deposited in the herbaria of London and Washington, where they were distributed without specific classification or study, and only appear now and then in the works of special monographers. As his plants are of vital interest to our work, they are being searched for and embodied in these contributions as found.

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*The economic characters of the Valdez collection will be published by the author in one of the botanical monthlies.

MAYA NAMES.

The Maya language appears to be mainly based upon imitation of sounds. This is particularly true in names given to animals, and somewhat so in plant appellations, the latter are, in most instances however, descriptive of evident characters, odors or uses.

The Maya literal sounds are substantially as follows:

A	like *a* in f*a*ther.	J	like *h* in *h*otel.
B	like *p* in la*p*.	K	hard as in *K*ate.
C	hard as in *c*rate.	O	long as in d*o*te.
D	like *t*.	U	like *oo* in b*oo*t.
E	like *a* in f*a*te.	X	like *sh* in *sh*ow.
H	nearly silent before consonants.	Y	like *e* in *e*ar.
I	like *e* in b*ee*.	Z	like *s* in *S*usan.

Ɔ like *tz*.

All sounds tend to the deep laryngeal, extended to considerable length.

PRONUNCIATION.

Uɔupek=Uutz-uu-pake.
Xtuhuy=Shtew-uue.
Xniɔox=Shnee-tzosh.
Xmuch-coc=Shmooch-coke.
Pim=Peem.
Lab=Lahp.

Plants Collected by Dr. George F. Gaumer in 1885, Sr. Porfirio Valdez in 1896, and the Author in 1887 and 1895.

FUNGI.*

Agaricus Yucatanensis, E. & E., sp. nov. (Plate VIII).

On decaying vegetable matter, 4 inches high, ashen gray. Izamal, common, Aug. (788).

Psalliota. Pileus 4 to 5 cm. diameter, thin, buff color, sulcate-striate from the margin half-way to the convex disk which is clothed with small, innate, darker-colored permanent scales. Lamellæ moderately crowded, thin, a little over 1 mm. wide, margins entire, attenuate-free. Stipe slender, 5 to 6 cm. high, 2 to 3 mm. thick, attenuated above. Ring medial, narrow. Spores brown, ovate-elliptical, about 7 x 4 μ.

The brown spores alone separate this from *Lepiota.*

Aspergillus flavus, Lk.

On various plants that were allowed to remain too long in plant press without changing driers.

Aspergillus fuliginosus, Peck?

On leaves of Epidendrum sp.

Asterina Yucatanensis, E. & E., sp. nov. (Plate IX).

On living leaves of Pterocarpus sp.

Amphigenous, but mostly epiphyllous, on suborbicular indefinite yellowish spots 3 to 4 mm. diam. When occurring on the lower surface of the leaf, then mostly without spots, in scattered patches of irregular outline 1 or more cm. across. Perithecia convex-hemispherical, 110 to 130 μ diam., subastomous, black, of fibrous texture, suboblong, fringed with a black, reticulated mycelium and bearing more or less abundantly, brown, septate, bristle-like hairs, 50 x 3 μ. Asci oblong-elliptical 40 to 50 x 20 to 25 μ, short stipitate or sessile, 8-spored. Sporidia oblong-elliptical, uniseptate in the middle and deeply constricted, dark brown, 20 to 2 x 8 μ.

Glœosporium affine, Sacc.

On leaves of Epidendrum sp.

Macrophoma Surinamensis (B. & C.).

On leaves of Epidendrum sp.

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*Determined by Mr. J. B. Ellis.

Pencillium glaucum Lk.

This cosmopolitan species was found plentiful in the interior of the apparently perfect and impenetrable ligneous shells of *Jacquinia armillaris* fruits.

Pestalozzia Coccolobæ E. & E., sp. nov. (Plate IX).

On leaves of Coccoloba uvifera, port of Silam, Apr.

Amphigenous, on reddish-brown orbicular spots 2 to 5 mm. diameter, whitening out, sometimes confluent and marginal. Acervuli subcuticular, erumpent, black. Conidia obovate-elliptical, 15 to 18 x 7 μ, faintly 3-septate, not constricted; end cells subhyaline, middle cells opaque, upper cell deciduous leaving the spore truncate. Crest naked or with 1 to 4 spreading bristles about 12 μ long.

This differs from the allied *P. Guepini* Desm., in its shorter, broader sporules.

CHLOROPHYCEÆ.

Microspora amœna (Keutz) Roben, *vide Miss Josephine E. Tilden.* **Xkomha.**

Common in water storage tanks at Izamal, Jan. to Dec. (571).

CHARACEÆ.

Chara gymnopus inconstans A. Br., *vide Dr. T. F. Allen.*

Abundant in cenotes near Izamal, March (434).

Near *forma crugeriana* A. Br., with slight differences.

HEPATICÆ.

Fruillania ericoides Nees.? *vide Prof. L. M. Underwood.*

On trees in brush and forest lands, uncommon, Izamal (339).

MUSCI.*

Cryphæa filiformis (Lev.) Mitt.

Common in the brush and forest about Izamal (320).

Hypnum sp.

Common in brush and forest lands near Izamal (340).

Octoblepharum albidum Hedw.

Abundant at the port of Silam, April (665).

Thuidium involvens (Hedw.) Mitt.

Common on rocks at the cenote of Xcholac (560).

FILICINÆ.†

ADIANTUM TRICHOLEPIS Fee. *Culantrillo.*

Common in shady places, 8 to 18 inches high, Izamal, Aug. to Jan. (386). Near Merida (*Valdez 64*).

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* Determined by Mrs. E. G. Britton.

† Determined by Mr. Geo. E. Davenport.

Anemia adiantifolia Swz.
On big mound at Izamal, uncommon, July to Jan. (372).

Dryopteris patens Swz. *Culantrillo blanco.*
Common in moist places near Merida (*Valdez 19*).

Asplenium pumilum Swz.
On rocks at Xcholac, frequent, March (543).

Cheilanthes microphylla Swz.
About the cenotes near Izamal, frequent, March (533).

Pellæa aspera Baker. *Helecho.*
Common in dry places near Merida (*Valdez 65*).

Polypodium lycopodioides Linn. **Xnabɔooɔ.**
Trailing 10 feet in old fields near Izamal, Sept. to Oct. (528).

LYCOPODINÆ.

Selaginella longispicata Underw. sp. nov. (Plate X.) **Xmuch-coc.**
Stems densely cæspitose, hygrometric, 10–13 cm. long, with the leaves about 4 mm. wide, pinnately branched above, simple in the lower half; dark green both sides or becoming brownish red below with age; leaves of the lower plane closely placed on both the main stem and its branches, obliquely ovate, margined with buff, minutely serrulate, cuspidate, imbricate nearly half their width; leaves of the upper plane nearly as large, margined, strongly ciliate throughout, long cuspidate, usually with a curved keel above when dry; leaves of both planes firm and rigid; spikes solitary at the ends of the principal branches, 2.5 cm. long, square, the bracts minutely serrulate and strongly keeled.

Easily distinguished from the other members of the § Rosulatæ by the solitary and greatly elongate spikes.

Forest lands near Izamal, not common (825).

Also collected in sterile condition "at the base of the eastern hills, where it encrusts fissures in the larger rocks" (*Valdez 50*).

GRAMINÆ.*

Andropogon Halepensis Sibth. *Sacate Paraná.*
Commonly cultivated near Izamal, June (720).

Andropogon Nardus L. *Sacate de Limon.*
Commonly cultivated at Merida (*Valdez 43*).

Anthephora elegans Schreb.
Along fences and in sheltered places near Izamal, not common, 16 inches high, June to Jan. (314).

Cynodon Dactylon Pers.
Frequent at Izamal, 1 foot high, April (683).

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* Determined by Prof. F. Lamson Scribner.

ELEUSINE INDICA Gærtn.

Common in gardens as a weed, 5 to 10 inches high, Izamal, Jan. to Dec. (461).

ERAGROSTIS CILIARIS Link.

Very abundant along roadsides near Izamal, 6 inches high, July to March (356). On open lands 10 inches high (312).

Eragrostis Mexicanus Link.

Common in open lands near Izamal, 12 to 14 inches high, June to Jan. (313).

Leptochloa mucronata Kth.

Common on old fields about Izamal, 3 feet high, Sept. (853).

Monanthochloë littoralis Engelm.

Abundant at the port of Silam, 2 feet high, April (624).

Panicum sp. **Xkanchim.**

Common on old fields near Izamal, 2 feet high, Sept. (854).

Apparently a new form in the section *Ichnanthus*. Not matched in the Natl. Herb., nor described, as far as examined at this time.

Panicum brevifolium Kth.

Common in small limestone caves in the brush and forest about Izamal, 4 feet high, Jan. to Dec. (522).

Panicum colonum Linn.

Common in old fields about Izamal, 16 inches high, Sept. (850).

Panicum divaricatum ———— var.?

Common in waste places about Izamal, 4 feet high, July (878).

Panicum fuscum Swtz.

On old fields near Izamal, Sept. (854 in part).

Panicum insulare G.F.W. Mey.

Frequent at the port of Silam, 3 feet high, April (675.)

PANICUM SANGUINALE Linn.

Roadsides near Izamal (251, 301 in part).

Paspalum paniculatum Linn.

Common on old fields about Izamal, 30 inches high, Sept. (852.)

Apparently a small form of the species. No counterpart in the Natl. Herb.

Setaria flava Kth.

Abundant in old fields near Izamal, 2 feet high, June to Dec. (756).

Setariopsis Scribn. gen. nov.

Tribe *Paniceæ*. Spikelets ovate, articulated with the pedicels, in rather densely flowered, more or less interrupted, subspicate panicles. Glumes four, the first three membranaceous, the fourth chartaceous or subcoriaceous. First glume much shorter than the others, 5- to 7-nerved; second glume a little shorter than the third, 11- to 13-nerved, very broadly ovate, cordate or auriculate at the base, obtuse; third glume narrower and a little longer than the second, 11-nerved, somewhat lyre-shaped at the base, the margins becoming somewhat coriaceous at maturity, palea short, hyaline; fourth or uppermost glume ovate, apiculate or short-mucronate pointed, striate or transversely rugose; palea similar in texture to the glume. Stamens three; stigmas plumose. — Annuals with rather slender, branching culms, flat leaves. Primary and secondary branches of the narrow subspicate terminal panicles prolonged beyond the spikelets into slender awn-like bristles. Species 2, Mexico and Central America.

The awn-like prolongation of the branches in this genus is a character which is not uncommon in the genus *Panicum*, particularly in the section *Ptychophyllum*, and the conformation of the glumes suggests a relationship with *P. gibbum* Ell. From *Setaria* this genus is distinguished by the awns which subtend the spikelets being only prolongations of the supporting branches, the many-nerved outer glumes, the peculiar formation or shape of the third glume and the distinctly apiculate or mucronate-pointed fourth glume.

Setariopsis auriculata (Fourn.) Scribn. nom. nov.

Setaria auriculata Fourn. Mex. Plant. Enum., Gram. 43.
Setaria pauciseta Vasey Bull. Torr. Bot. Club, XIII, p. 230.

Culms slender. 1 to 2 feet high, branching below, slightly compressed, pubescent at the nodes with appressed hairs, otherwise smooth; sheaths striate compressed, smooth or minutely strigose-pubescent, ciliate on the margins and pubescent at the apex; ligule a short string of hairs, leaf-blade lanceolate, 5 to 7 inches long, 2 to 6 lines wide, long-acuminate-pointed and tapering towards the base, minutely pubescent on both surfaces, becoming smooth with age. Panicle 3 to 5 inches long, the primary branches .25 to 1 inch long, scabrous as are the main axis and pedicels, the awn-like continuations of the branches 3 to 6 lines long. Spikelets 1.5 line long, very short pedicelled, fruiting glume nearly one-fourth shorter than the second and third glumes, transversely rugose. Common on old fields about Izamal, Sept. (849). *No. 592 A. Schott* (1865); Alamosa, Mexico (*684 E. Palmer*, 1880); Southwestern Chihuahua, Mexico (*78 E. Palmer*, 1885); Oaxaca, Mexico, vicinity of Cuicatlan, alt. 1,800 to 2,500 feet (*Nos. 1601, 1701 E. W. Nelson*, 1894). The numbers here cited are in the National Herbarium.

[**Setariopsis latiglumis** (Vasey) Scribn. nom. nov. (Plate XI).

Setaria latiglumis Vasey Bull. Torr. Bot. Club, XIII, 229 (1886).

Similar in habit to *S. auriculata*, but more slender, with smooth or very minutely scabrous leaves, narrower and more densely flowered panicles, whose main axis and branches are rather densely papillate-pilose. The spikelets are larger (2 lines long), and the glumes broader, the fourth glume is less rigid and apparently smooth.

Southwestern Chihuahua, Mexico (*No. 117a E. Palmer*, 1885); near Tuxtla, Chiapas, Mexico, alt. 2,400 to 2,800 feet, (*No. 3083 Nelson*, 1895.)*]

Sporobolus minutiflorus Link.

Near Izamal, Sept. (891). Mexico, 1890 (*Pringle 3130, Liebman, 707*).

CYPERACEÆ.†

Cladium Germanicum Schrad.

C. mariscus R. Br. Abundant on the margins of cenotes, 12 feet high, Izamal, March (436).

Cyperus canus J. & C. Presl.

Common on the borders of cenotes near Izamal, 3 feet high, March (483).

Cyperus ochraceus Vahl.

Abundant on open lands near Izamal, July to Dec. (388).

Eleocharis capitata R. Br.

Abundant on the margins of the shallower cenotes, 1 foot high, Izamal, Jan. to Dec. (424).

Scirpus lacustris Linn.?

Abundant on the margins of the shallower cenotes, 8 feet high, Izamal, Feb. to March (423).

PALMÆ.

COCOS NUCIFERA Linn. *Coco.*

Tree 50 to 100 feet high, cultivated at Izamal, Jan. to Dec. (373).

LEMNACEÆ.

Wolffia Braziliensis Wedd, *vide Edmund. P. Sheldon.* **Yximha.**

Common in water storage tanks at Izamal, March to August (570).

BROMELIACEÆ.

AECHMEA BRACTEATA (Sw.) Mez.

Bromelia Sw. Near Merida. (*Schott 891*). Mez. C., Bromel., DC. Monogr. Phaner. 9: 1896.

[AECHMEA LAXIFLORA Benth.

Not included in Mez. C., Bromel. DC. Monogr. Phaner. 9: 1896, as having been collected by Schott in Yucatan. The correctness of including species on page 12 is therefore open to doubt.]

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*This species comes near our peninsular range, and may yet be found in this flora. C.F.M.

†Determined by Prof. N. L. Britton.

BROMELIA PINGUIN Linn. **H-mam. Chom.**
Uncommon, in forests about Izamal; 6 feet high, flowers light blue. May (691). Plentiful in woodlands about Merida (*Valdez 82*).

BROMELIA SYLVESTRIS Willd.
Near Merida (*Schott 893*). Mez. C., Bromel. DC. Monogr. Phaner. 9: 1896.

TILLANDSIA BALBISIANA Schult.
Yucatan loc. ignot. (*Schott 894*). Mez. C., Bromel., DC. Monogr. Phaner. 9: 1896.

TILLANDSIA CIRCINNATA Schl.
Near Merida (*Schott 250*). Mez. C., Bromel., DC. Monogr. Phaner. 9: 1896.

TILLANDSIA DASYLIRIIFOLIA Baker.
Near Merida (*Schott 288*). Mez. C., Bromel., DC. Monogr. Phaner., 9: 1896.

Tillandsia fasciculata Sw. **Chuc.**
Abundant on trees near Izamal, 18 inches high; flowers bright royal-purple. March (422).

TILLANDSIA FASCICULATA LATISPICA Mez.
Yucatan loc. ignot. (*Schott 435*). Mez. C., Bromel., D.C. Monogr. Phaner., 9: 1896.

[TILLANDSIA FILIFOLIA, Cham. & Schl., noted in Contrib. I, p. 12., as having been collected in Yucatan by Johnson proves to be his No. 128 from Tobasco. This species should not be credited to this flora.]

[TILLANDSIA POLYSTACHYA Linn.
Although this species is noted by Professor Helmsley in the *Biol. Centr. Am.* as having been collected in Yucatan by both Schott and Johnson, it is not credited to Yucatan in Mez. C., Bromel., DC. Monogr. Phaner. 9: 1896.]

TILLANDSIA VESTITA Cham. & Schl. **Xeen.**
Abundant on forest trees near Izamal, 10 inches high, March (427). Very abundant at the port of Silam, 6 inches high April (664).

TILLANDSIA RECURVATA Linn.
Yucatan loc. ignot. (*Schott, 35*). Mez. C., Bromel., DC. Monogr. Phaner. 9: 1896. At the port of Silam, 8 inches high, flowers light purple. April (659).

TILLANDSIA STREPTOPHYLLA Scheidw. **Xholohbenal.**
At Progreso (*Schott, 274*). Mez. C., Bromel, DC. Monogr. Phaner. 9: 1896. At the port of Silam, 3 feet high, April (668).

Tillandsia usneoides Linn. *Barba Españuela.* **Mex-nuxib.**
Yucatan loc. ignot. (*Schott 76*). Mez. C., Bromel, DC. Monogr. Phaner. 9: 1876. Abundant at the port of Silam. April (663).

Tillandsia utriculata Linn.
Erect 4 feet high, abundant at the port of Silam, April (651).

Vriesia psittacina decolor Wawra.
Yucatan loc. ignot. (*Schott, 75*). Mez. C., Bromel., DC. Monogr. Phaner. 9: 1896.

COMMELINACEÆ.

Rhœo discolor (L'Her) Hance. **Chac-ɔam. Yax-ɔana.**
Common on all ruins and rocky places, 18 to 20 inches high, flowers pure white, Jan. to Dec. (535, 809).

PONTEDERIACEÆ.

Heteranthera limosa Willd.
Herb 6 inches high, flowers dark blue. In sartenejas near Izamal, July (840).

LILIACEÆ.

Aloe vera Linn. *Zavila.*
Cultivated at Izamal, March (527).

Asparagus officinalis Linn. *Esparrago.*
Herb 6 feet, uncommonly cultivated at Izamal, Jan. to Dec. (485).

Echeandia terniflora Ortega.
Herb 4 feet high, common in moist, shady places near Izamal, Sept. (843).

AMARYLLIDACEÆ.

Agave rigida elongata Mill. *Agave. Henequen.* **Sacci.**
Agave Sisalana Perrine. Extensively cultivated, constituting the wealth of Yucatan. Izamal, Oct. to March (375).

Amaryllis equestris (Herb.) Ait. *Adonis.*
Hippeastrum equestre, Herb. Commonly cultivated at Izamal. Jan. to March (569).

Hymenocallis lacera Salisb.
H. rotata Herb. Herb 3 feet high, common in moist places near Izamal. July to Aug. (777).

ORCHIDACEÆ.

Spiranthes orchioides A. Rich. *Cerciopelo.*
Rare, 2 feet high, flowers bright crimson. North Izamal, June (874).

Spiranthes polyantha Reichb. f.

Rare, 1 to 2 feet high, flowers dull red. In crevices of rocks at Xcholac, Feb. (442).

PIPERACEÆ.

Peperomia glutinosa sp. nov. (Plate XII).

Stem thick, succulent, creeping (3 feet), glabrous; branches erect, dichotomously forked or simple, internodes 2 to 4 inches long. Leaves opposite, rarely a whorl of 3, fleshy, smooth both sides, ovate, entire, tapering at both ends, blunt, 3-veined, not dotted; petiole one-third to one-half the length of the blade. Rachis terminal, slender, 3 to 6 inches long, glabrous, shallow-foveolate. Ovary pyriform, rostellate, subtended by a flat disciform ovoid scale, and covered on the basal half with a black sticky exhudation. Stigma apical, capitate. Leaves 1 to 2 inches long.

On the borders of cenotes near Izamal, March (435). Also collected by Mr. Pringle on rocks at Mucos, San Luis Potosi, 1891 (*5066.*)

Piper medium Jacq. **Yaxtehc-ché.**

Shrub 15 feet high; common at Buena Vista Xbac. Aug. (783).

MORACEÆ.

Ficus Jaliscana Watson. **Pomoloché.**

Small tree 15 feet high, abundant in the brush and forest lands about Izamal, Jan. to June (365).

Ficus longipes Miq. *Alamo.* **Copó.**

Tree 60 feet high, abundant in forests everywhere. Izamal, May (599).

Morus celtidifolia H. B. K. *Mora.*

A large tree 90 feet high, abundant in the forests about Izamal, June (726).

URTICACEÆ.

Alicastrum Brownei Kuntze. *Ramon.* **Ox.**

Brosimum Alicastrum Sw. Tree 100 feet high, abundant everywhere in Yucatan; Izamal, June to July (748). Near Merida (*Valdez, 94*).

Dorstenia Contrajerva Houstoniana Bureau. **Xkambahan.**

Herb 10 inches high, abundant in the forests about Izamal, May (698).

Parietaria Pennsylvanica Floridana (Nutt.), Wedd.

Herb 18 inches high, common in moist, shady places about Izamal, Sept. to Nov. (844).

Pilea muscosa Lindl. *Frescura.* **Yomha.**
An abundant weed in gardens at Izamal (455). Common near Merida (*Valdez, 83*).

URERA MICROCARPA Wedd. **Laal.**
Shrub 20 feet high, common in the forests about Izamal, Dec. to March (501).

LORANTHACEÆ.

Loranthus calyculatus DC. **Chac-Xciu.**
Very abundant on trees everywhere. Izamal, May to Dec. (755).

Phoradendron flavescens Nutt. **Xax-xciu. Xmuy-ché.**
Common on trees at Silam, June (876), and at Izamal Jan. to Dec. (561).

OLACACEÆ.

Ximenia Americana Linn. **Xkuk-ché.**
Tree 40 feet high, common in the forests near Izamal, June (710).

ARISTOLOCHIACEÆ.

Aristolochia brevipes Benth. *Guaco.*
Vine 6 feet, abundant on stone walls about Izamal, Jan. to Dec. (441).

ARISTOLOCHIA GRANDIFLORA Sw. *Flor de Pato.*
Aristolochia fœtens Lindl. Introduced from the Island of Ruatan to cultivation at Izamal, Oct. to March (327).

POLYGONACEÆ.

Coccoloba coronata Jacq.? **Xbobché.**
Tree 30 feet high, common in the forests near Izamal, Sept. (not in fruit, 819).

COCCOLOBA UVIFERA (Linn.) Jacq. *Uva de Mer. Uba.*
Shrub 4-6 feet high, on the beach at Progreso, April, 1887 (*Millspaugh, 6*). A large tree 60 feet high, abundant at the port of Silam, April (638).

Podopterus Mexicanus Humb. & Bonpl. **Saciɔa.**
Tree 50 feet high, common in forests and brush lands near Izamal, July (750).

AMARANTACEÆ.

ACHYRANTHES ASPERA Linn. *Sorrillo Blanco,* **Sac-piché.**
Herb 5 feet high, common everywhere about Izamal, Sept. to Feb. (540).

ALTERNANTHERA STRAMINEA (Mart.) Millsp. *Amor Seco del Monte.*
Herb 6 feet high, abundant in brush lands about Izamal, Jan. to Dec. (369). Common near Merida (*Valdez, 53*).

Amaranthus polygonoides Linn. **Sacxtez.**
Herb 1 foot high, common on old fields about Izamal (459).

Amaranthus spinosus Linn. *Bledo.* **Xtes.**
Herb 3 feet high, very abundant in fields about Izamal, Jan. to Dec. (468). Common near Merida (*Valdez, 56*).

CELOSIA PANICULATA Linn.
Herb 4 feet high, infrequent, Xcholac, March (542).

Celosia virgata Jacq. **Xhatalnal.**
Herb 4 feet high, common on old fields, Izamal, Jan. to Dec. (458). Old fields near Merida (*Valdez, 79*).

Gomphrena decumbens Jacq.
In the brush lands about Izamal (369 in part).

IRISINE CELOSIOIDES Linn.
Suffrutescent 5 to 10 feet high, abundant in brush lands near Izamal, Oct. to Feb. (392).

Philoxerus vermicularis (L) R. Br.
Herb 2 feet high, abundant at the port of Silam, April (623).

PHYTOLACCACEÆ.

PETIVERIA ALLIACEA Linn. **Xpayché.**
Herb 6 feet high, very abundant on waste lands near Izamal, Sept. to Dec. (814). Waste lands near Tikul, Apr. 1887. (*Millspaugh 12*).

Phytolacca Mexicana Sweet? **Telcox.**
Racemes 6 to 9 inches long, peduncle 4 inches long, leaves 5 to 7 inches long, petioles 2 to 3 inches long, stamens 20, coccæ 10. With the next species (674^{b}).

Phytolacca octandra Linn? **Telcox.**
Racemes short peduncled, erect, 4 inches long, leaves 2 to 3 inches long, short petioled, stamens 8 to 10, coccæ 7 to 9. Abundant at the port of Silam, April (674^{a} in part).

RIVINA HUMILIS GLABRA Linn.
Herb 6 to 18 inches high, common on cultivated lands about Izamal, Jan. to Dec. (322).

NYCTAGINACEÆ.

BŒRHAAVIA ERECTA Linn. *Yerba blanca.* **Xacil-sacxiu.**
Trailing 6 feet, common at the port of Silam, April (627). Herb 3 feet high, very abundant on cultivated lands near Izamal, Jan. to Dec. (361). Common about Merida (*Valdez, 91*).

Bœrhaavia hirsuta Linn.
Herb 3 feet high, common on cultivated ground, Jan. to Dec. (309).

Mirabilis Jalapa Linn. *Maravilla.*
Herb 5 feet high, abundant everywhere about Izamal, March to June (548).

Allionia violacea (Choisy).
Oxybaphus violaceus Choisy. Herb 1 foot high, common in shady places near Izamal, April (579).

Pisonia aculeata Linn. **H-Beeb.**
Trailing 50 feet, abundant in brush and forest lands at Izamal (305). Abundant near Merida (*Valdez, 57*).

PORTULACACEÆ.

Portulaca halimoides Linn. **Ɔay-och-can.**
Prostrate 6 inches; flowers orange-yellow. Common in moist places near Izamal, May (603).

Portulaca oleracea Linn. *Verdolaga.* **Xucul.**
Prostrate herb 18 inches, very abundant as a weed in gardens at Izamal, July to Oct. (517).

Portulaca pilosa Linn. **Ɔioch.**
Prostrate 12 inches, abundant in crevices of rocks near Izamal, Aug. (782).

Sesuvium Portulacastrum Linn.
Prostrate herb 6 feet, flowers blue, Port of Silam, April (625).

Talinum triangulare (Jacq.) Willd.
Herb 1 foot, not common; forests of Xcholac, April (598). Herb 1½ feet high, flowers white, the *crassifolium* form, shady places near Izamal, June to Oct. (733).

CARYOPHYLLACEÆ.

Silene Cucubalus Weibel.
Herb 1 foot high, a rare escape to old fields. Izamal, Sept. to June (545).

NYMPHACEÆ.

Castalia ampla (DC.) Salisb. **Lab.**
Abundant in the larger sartenejas, Jan. to Dec. (428).

ANONACEÆ.

Anona Cherimolia Mill. *Saramuyo.* **Ɔalmuy.**
Tree 30 feet high, commonly cultivated at Izamal for its fruit—the Custard-apple (605).

RANUNCULACEÆ.

Clematis dioica Linn.

Vine 30 feet, abundant in brush lands near Izamal, in fruit Nov. (387).

MENISPERMACEÆ.

Cissampelos Pareira Linn. **Ɔuɔuc-ché.**

Vine 15 feet, abundant on stone fences about Izamal, Sept. (484).

LAURACEÆ.

Persea gratissima Gærtn. *Aguacate.* **On.**

Cultivated at Merida, April, 1887. (*Millspaugh, 25*).

PAPAVERACEÆ.

Argemone Mexicana ochroleuca Lindl. *Cardo Santo.*

Herb 1 to 4 feet, abundant in open places about Izamal, May to Aug. (562). Common near dwellings, Merida (*Valdez, 16*).

CRUCIFERÆ.

Brassica oleracea Linn. *Col.*

Cultivated at Izamal, March (505).

Cakile æqualis L'Her.

Cakile maritima Scop. On the beach at Progreso, April, 1887, (*Millspaugh, 7*). This species does not appear in Dr. Gaumer's collections from the port of Silam.

Lepidium apetalum Willd. *Mastuerzo.* **Putxiu.**

Herb 6 to 18 inches high, abundant as a weed in gardens, Izamal, Jan. to Dec. (456). Becoming plentiful about Merida (*Valdez, 14*).

CAPPARIDACEÆ.

Capparis amygdalifolia Jacq.

Shrub 6 feet high, common at the port of Silam, April (657).

Cleome polygama Linn.

Our specimens are nearest to the published characters of this species. Herb 2 feet high, leaves entire, flowers white, stipules and petioles prickly; stems, branches and petioles finely pubescent, pod glabrous. Common at Silam, April (617).

Cleome spinosa Jacq.

Herb 5 feet high, on waste grounds in towns, Izamal, July to March (405).

Cratæva gynandra Linn. *Tres Marias.* **Xkolocmax.**

C. Tapia L. Tree 60 feet high, common in the brush and forests about Izamal, Oct. to April (333). Abundant near Merida, (*Valdez, 76*).

MORINGACEÆ.

Moringa aptera Gærtn.
An African shrub 20 feet high, sparingly cultivated at Izamal, March to June (465).

CRASSULACEÆ.

Bryophyllum pinnatum (Lam.) S. Kurz. *Siempre vive.* **Cisalxiu.**
Bryophyllum calycinum Salisb. Herb 3 to 6 feet high, abundant in and about towns, Izamal, Dec. to June (514). Common in and about Merida (*Valdez, 78*).

LEGUMINOSÆ.

Acacia Farnesiana (L.) Willd. **Xkantiriz.**
Tree 25 feet high, common from Temax to Silam, April (658).

Acacia filicina Willd. **Xaax.**
Tree 20 feet high, common in the forest and brush lands about Izamal, Aug. to Sept. (863).

Acacia spadicigera Cham. & Schl. **Subin.**
Low tree 20 feet. Abundant in the brush and forest lands about Izamal, Jan. to Dec. (353).

Acacia sphærocephala Cham. & Schl.
Shrub 8 feet high. Common at the Port of Silam, April (655).

Æschynomene fascicularis Cham. & Schl.
Shrub 20 feet high. Common in brush lands near Izamal (495, 511).

Bauhinia divaricata Linn. *Pata de Vaca.* **Zac Ɔulud-tok.**
Bauhinia porrecta Sw. A small tree 15 to 30 feet high. Abundant in brush and forest lands near Izamal (307, 336 in part). Common near Merida (*Valdez, 11*).

Caesalpinia pulcherrima (L.) Sw. **Chacɔinkin.**
Campo near Merida (*Valdez, 97*).

Calliandra gracilis Klot. **Xyalaha-ɔac.**
Shrub 20 feet high, frequent in the brush lands about Izamal, Sept. (866).

Calliandra Portoricensis (Jacq.) Benth. **Pich.**
Tree 100 feet high, abundant everywhere near Izamal, June (722).

Cassia Chamæcrista Linn.
Herb 2 feet high; along the Chique road near Izamal, uncommon, Aug. (885).

Cassia occidentalis Linn. *Frijolillo.*
Shrub, 8 feet high; very abundant in open places near Izamal (519).

Cassia sericea Sw. **Xtulubayen.**
Herbaceous, 4 feet high. Abundant in waste places about Izamal, Jan. to Dec. (600). (*Millspaugh, Armour Exped. 225*).

Cracca Greenmanii sp. nov. (Plate XIII.)
Suffrutescent, roots tuberous, sericeous-pubescent. Leaflets 5, ovate, acute, obtuse, emarginate or mucronate, tapering to the short petiolule; glabrous above sericeous beneath, common petiole deeply channelled. Stipules subulate. Inflorescence on elongated few-flowered glandular-pubescent racemes, bracts subulate about the length of the peduncle. Calyx 5 parted, the two interior divisions somewhat connate, and one or more of the others once or twice irregularly cleft-dentate. Stamens diadelphous, anthers reniform, fixed at the base. Style in-curved, barbellate on the lower side; stigma terminal, slightly capitate; ovary about 16 ovuled. Legume flatly compressed, bivalved.

Plant 1 foot high; racemes 2.5 to 4 inches long; leaflets 5 to 10 lin. long, 3 to 7 lin. broad, petiolules 1 lin. long; corolla creamy white. Allied to *C. mollis* Benth., from which it differs in leaflets, pubescence and habit. Mr. J. M. Greenman of the Gray. Herb. Harvard first suggested the apparent novelty of this species.

Infrequent along roadsides at Izamal, where it is known by Dr. Gaumer, although it does not appear in his 1895 collection. In opens at Chichen Itza, Jan. (*Millspaugh, Armour Exped. 127*).

CRACCA CINEREA (L.) Kuntze. **Sulché.**
Tephrosia cinerea Pers. Herbaceous, 6 feet high; common along roadsides, Tecal road near Izamal, Sept. (869).

The narrow leaved form 16 inches high; Silam, April (616); and waste places Izamal (346 in part).

Crotalaria incana Linn. **Sacpet.**
Herb 3 feet high; common in shady woods about Izamal, June to Oct. (775).

PAROSELA DOMINGENSIS (DC)
Dalea Domingensis DC. Shrubby, 5 feet high. Common in old fields at Izamal, Oct. to Feb. (389).

Meibomia Scorpiurus (Sw.) Kuntze.
Desmodium Scorpiurus Desv. Waste places about Izamal (346 in part).

Meibomia tortuosa (Sw.) Kuntze.
Desmodium tortuosum DC. Herb, 3 feet high; common in opens about Izamal, Sept. to Feb. (343).

The Yucatan specimens agree better in form and habit with the Jamaican than with the North Mexican.

Erythrina coralloides Mocq. & Sesse. **Chacmol-ché.**
Tree 30 feet high; common in brush and forest lands near Izamal, Jan. to June (306).

Gliricidia maculata H. B. K. **Sacyab.**
Tree 30 feet high; abundant at Xanaba, Feb. (448).

Hæmatoxylon Campechianum Linn. *Palo de Tinte.*
Tree 30 feet high; abundant at the port of Silam, April (646).

Indigofera Anil Linn. **Choh.**
Shrubby, 4 to 6 feet high; common along the Chique road near Izamal, Sept. (886).

Leucæna glauca (L.) Benth. **Xaxim.**
Tree 30 feet high; abundant in the brush lands about Izamal (390).

Lysiloma latisiliqua (L.) Benth. **Ɔalam.**
Tree 80 feet high, very abundant in the forests about Izamal, April to May (606).

Lysiloma Sabicu Benth. **Xiaxek.**
Tree 20 feet high, common in the brush lands about Izamal, Aug. to Sept. (873).

Cacara erosa (L.) Kuntze. *Jicama.* **Chicam.**
Pachyrrhizus angulatus Rich. Vine 20 feet, flowers slaty-blue; abundant in the forests about Izamal, Sept. to Jan. (812).

Phaseolus lunatus Linn. *Frijole.*
Vine 10 feet. Common in the brush lands about Izamal, Aug. to March (564).

Ichthyomethia piscipula (L.) Kuntze. **Habin.**
Piscidia Erythrina Linn. Large tree 50 to 80 feet high. Abundant in the forests near Izamal, March to May (524).

Pithecolobium brevifolium Benth. **Chucum.**
Tree 80 feet high, abundant in forests about Izamal, July (767).

Pithecolobium Unguis-cati (L.) Benth. **Ɔinché.**
Tree 30 feet high, abundant in brush and forest near Izamal, Feb. (352).

Poinciana regia Boj. *Flamboyan.*
Tree 30 feet high, commonly cultivated throughout the tropics, Izamal, May (692), Merida, April, 1887 (*Millspaugh, 10*).

Rhynchosia minima (L.) DC.
Climbing 10 feet; brush lands about Izamal, common, Sept. to March (565, 768).

Tamarindus Indica Linn. *Tamarindo.*
Tree 60 to 80 feet high; commonly cultivated throughout Yucatan, Izamal, June (709).

OXALIDACEÆ.

Oxalis Berlandieri Torr.
Herb 1 foot high; common along roadsides about Izamal, June (715).

Oxalis latifolia H. B. K. **Yala-elel.**
Herb 6 to 8 inches; abundant in gardens at Izamal, May to June (585.)
Our specimens compare better with Spruce's Ecuadorian forms than with Botteri's or Seaton's from Orizaba.

MALPIGHIACEÆ.

Heteropteris Beechyana A. Juss.
Vine 30 feet, flowers pink; rare, only one plant seen, that about three miles southeast of Izamal, Aug. (892).

ZYGOPHYLLACEÆ.

Guaicum sanctum Linn. Lignum vitæ.
A large tree 60 feet high; common at the port of Silam, April (669).

TRIBULUS MAXIMUS Linn. **Xichiak.**
Prostrate 3 feet, common in waste places near Izamal, Dec. to May (462).

TRIBULUS TERRESTRIS CISTOIDES (L.) Oliver. *Abrojo.* **Chanxnuc.**
Everywhere about Progreso, April, 1887 (*Millspaugh, 33*). Abundant at the port of Silam, April (620). Common at Merida (*Valdez, 37*).

RUTACEÆ.

Citrus acida Pers. *Limoncillo.*
Tree 20 feet high, extensively cultivated throughout the peninsula. Izamal, April to May (602).

CITRUS AURANTIUM Linn. *Naranja de China.*
Cultivated throughout the peninsula. Merida, April, 1887 (*Millspaugh, 26*). Tree 20 feet high, Izamal, March to June (549).

CITRUS LIMETTA Risso. *Limoncillo dulce.*
Tree 25 feet high, commonly cultivated; Izamal, Feb. to March (471).

CITRUS VULGARIS Risso. *Cajera.* **Suopakal.**
Tree 20 feet high; cultivated extensively at Izamal, Feb. to June (447).

Ruta graveolens Linn. *Ruda.*
Cultivated and escaped about Merida (*Millspaugh, 38: Valdez, 34*).

SIMARUBACEÆ.

ALVARADOA AMORPHIOIDES Liebm. *Palo de Ormigas.* **Xbesinic-ché.**
Tree 40 to 60 feet high, abundant in forest and brush lands near Izamal, Dec. (347). Common near Merida (*Valdez, 100*).

SURIANA MARITIMA Linn.
Shrub 10 feet high, common at the port of Silam, April (636).

BURSERACEÆ.

Bursera graveolens Tri. & Planch. **Nabanché.**

Tree 50 feet high, common in cultivation at Izamal, May (690).

MELIACEÆ.

CEDRELA ODORATA Linn. *Cedro.* **Kulché.**

Tree 80 to 125 feet high, abundant everywhere on the peninsula. Izamal, July (749).

MELIA AZEDERACH Linn. *Paraiso.*

Tree 60 feet high, common in cultivation at Izamal, May to June (583).

TRICHILIA TERMINALIS Jacq. **Choben-ché.**

Tree 60 feet, abundant in forests about Izamal (335).

EUPHORBIACEÆ.

Acalypha mollis Kunth.

Shrubby, 8 feet high. Common in the forests about Izamal, March to April (477).

ACALYPHA SETOSA A. Rich.

Herb 8 to 20 inches high; very abundant in old fields near Izamal (493).

Acalypha unibracteata Müll. **Chilibtux.**

Shrubby, 10 feet high, very abundant in the brush lands about Izamal (568).

The virgate branches are used by the Indians in the construction of bird cages and traps.

Argithamnia tinctoria sp. nov. (Plate XIV.)

Shrubby, 4 feet high, stems one or few, ligneous, smooth below, branching and appressed hairy above. Leaves ovate-lanceolate, acute at both ends, entire or with a few scattered indistinct gland-like teeth, three ribbed, the middle prominently veined, older leaves smooth above, all densely pilose below: 1.5 to 3 inches long, .75 to 1.5 inches broad, petiole very short, .12 to .25 inch long, stipules cornuate-apiculate .12 inch long. Inflorescence in short, densely flowered racemes, monœcious, twice to thrice shorter than the leaves. Female flowers: calyx lobes pilose, ovate-lanceolate narrowed at the base, pointed and keeled, the pedicels 1-bracted at the middle, styles dilated above, stigma bipartite spreading, glands small conduplicate, fruit densely pilose, seeds deep-rose color, densely honeycombed by strong reticulations. Male flowers hairy throughout, calyx lobes ovate pointed, petals orbiculate entire, glands free above, spatulate, glabrous.

This plant agrees with a specimen in Herb. Gray. Harvard, collected by C. Wright in Nicaragua, labeled *A. scrobiculata* sp. nov., C.W. The glands and seeds, when boiled, emit a beautiful rose-pink dye. Common about Xcholac, March (426).

Croton albidus Müll. **Ycaban.**

Shrubby, 1.5 to 2 feet high; along the railroad at Tecantun, Jan. 1895 (*Millspaugh, Armour Exped. 61, 189*). Shrubby, 3 feet high; abundant in the brush lands about Izamal (303).

Croton arboreus sp. nov. (Plate XV.)

§ *Eleuteria.* A large tree. Branchlets lepidote; stipules thick columnar; leaves palmately 5-veined, ovate-acuminate, deltoid or acute at the base, 4 to 6 inches long, 3 to 5 inches broad, petioles half the length of the blade which is bicolor, sparingly lepidote above, densely but not contiguously lepidote beneath with two sorts of lepida, the one rusty-brown greatly scattered, the other silvery with a rusty center. Young leaves ovate-cordate densely silvery-lepidote. Racemes axillary and terminal, mostly simple, about twice the length of the petiole; densely large flowered, with the usually single female flower separate at the base. Male flowers densely crowded, sessile; calyx of 5 ovate, pointed, rusty-lepidote sepals, petals ovate-spatulate hairy on the margin; stamens, 10 fertile, 1 sterile. Female flowers short pedicelled; calyx of 5 ovate, pointed, rusty-lepidote segments; petals ligulate, blunt; ovary globular, thickly matted with a felt half the diameter of the ovary, composed of lepidote-stellate hairs; style peltate, sessile, investing the upper half of the ovary, 4-partite, the segments 3-cleft, and these 3-fid, revolute. Capsules globular, slightly 3-sulcate; semen ignoti.

Tree 60 feet high, in the forests about Izamal (449). Near *C. niveus* Jacq.

Croton Cortezianus Kunth. **Xa-balam.**

Bushy, 3 to 5 feet high. Along the railroad at Bocobá, Jan. 1895 (*Millspaugh, Armour Exped., 191*). Common near Merida (*Valdez, 17*).

Croton flavens Linn.

In open woodlands north of Mascab Pixoy, Jan. 1895 (*Millspaugh, Armour Exped. 149*).

Croton fragilis H. B. K. **Taanché.**

Shrub 15 feet high, very abundant in the brush lands about Izamal (689).

Croton humilis Linn. **Ycaban.**

Herbaceous, 18 inches high. Open grounds and scrub lands about the Monjas, Chichen Itza, Jan. 1885 (*Millspaugh, Armour Exped. 102*). Common in the scrub lands near Merida (*Valdez, 20*).

Croton lobatus Linn.

Herb 1 to 4 feet high. Common in old fields about Izamal. July to Aug. (760).

Croton rhamniæfolius salviæfolius Müll. **Ecbalam.**

Shrubby, 5 feet high. Abundant in open fields about Izamal, Jan. to Dec. (407).

Dalechampsia scandens Linn.
Climbing vine 6 feet. Frequent in stony places near Izamal, Feb. to March (480).

EUPHORBIA ADENOPTERA Bertol.
Abundant on the roofs of houses at Silam, April (629).

Euphorbia astroites Fisch. & Mey.
Frequent in caves and on rocks in shady places near Izamal, Sept. to Feb. (521).

EUPHORBIA HETEROPHYLLA Linn. **Hobonkak.**
Common in damp shady places about Izamal, July to March (512).

Euphorbia heterophylla cyathophora (Murr.) Boiss.
A simple stemmed rigidly erect form, 2 to 3 feet high, with the leaves all clustered about the apical inflorescence. Frequent in shady places about Izamal, Aug. to Sept. (862).

EUPHORBIA HYPERICIFOLIA Linn.
Herb 18 inches high. Common in shady places during the dry season, Izamal, Feb. (508).

Euphorbia pilulifera procumbens (DC.) Boiss. **Xanabmucuy***
Very abundant on cultivated lands about Izamal (315). Common on waste grounds near Merida (*Valdez, 2*).

Euphorbia Preslii Guss.
Herb 5 feet high during the wet season. Abundant on vacant grounds about Izamal, Aug. to Sept. (882).

Euphorbia rhytisperma Engelm. **Xancalmucay.**
Abundant on stone walls about Izamal (460).

Euphorbia serpyllifolia Pers.
Cultivated lands about Izamal (315 in part).

Euphorbia thymifolia Burm.
Along fences and in shady places near Izamal, uncommon, June to Jan. (314 in part).

Euphorbia Mayana sp. nov. (Plate XVI). **Sac-chacah.**
§ *Alectoroctonum.* Shrubby 3 to 15 feer high, stems erect subligneous widely branching, whitish-ribbed, swollen-articulate, branches opposite, internodes 2 to 2.5 inches long. Leaves axillary and more or less ternate on the cymes, all alike, petioles somewhat longer than the ovate-obtuse, basally acute, pale, smooth, fleshy leaf. Inflorescence cymose-paniculate, 4 to 12 capitate, axillary or terminal on the slender branchlets; pedicels somewhat longer than the smooth campanulate involucres; involucral lobes spatulate, fimbriate-dentate, glands brown, plane, broader than the greenish-white crenate appendages.

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* Applied in general to the small prostrate species of Euphorbia.

Styles cleft into two columnar broadly swollen lobes but slightly capitate at the apex. Capsule deeply 3-carpellate, carpels scurfy not carinate; seeds globular, ecarunculate, white, deeply and irregularly scrobiculate. Leaves 4 to 6 lin. long, 3 to 5 lin. broad. Capsules 3 lin. diam.; seeds 1.5 lin. diam.

Differs from *E. Schlechtendalii*, its nearest counterpart, in its leaves, glands, appendages, styles, and habit. Named in commemoration of the aboriginal Maya's who have long used the plant medicinally as a drastic-purgative or emeto-cathartic according to the size of the dose employed.

Abundant in the brush lands about Izamal, June to Dec. (302). (*Millspaugh, Armour Exped. 99*).

Excœcaria glandulosa Sw. **Kanchunup.**

Tree-like 20 feet high, abundant about the the town of Silam, April (615).

Jatropha Curcas Linn. **Siclte.**

Shrub 15 feet high, cultivated to some extent at Izamal, June (746).

Jatropha urens Linn. *Chay.* **Chaya.**

Climbing 40 feet. Commonly cultivated at Izamal, producing the edible *Chay* of the market (604).

Jatropha urens stimulosa (Mich.) Müll. **Ɔinɔin-chay.**

Campo about Merida, April 1887 (*Millspaugh, 11*). Shrubby, 20 feet high, in the forests about Izamal, common, Jan. to Dec. (425).

Pedilanthus nodiflorus sp. nov. (Plate XVII.)

§ *Eupedilanthus.* Shrubby, 6 feet high. Stems whitish-farinose, jointed, widely branching; branches virgate, alternate. Leaves.................................. Inflorescence in lateral, spiciform, densely white-tomentose clusters at the nodes; pedicles in fruit as long as the involucre. Involucre red, the inferior lobes deltoid, irregularly 3-lobed at the apex, uniglandular at the base, superior lip deeply 2-lobed and with a rudimentary third lobe; lobes ovate-truncate, the apices finely and regularly serrate-toothed. Style columnar, long-exserted, composed of 6 coherent tubular styles; stigmas 3, bilobed at the very apex; ovary woolly-tomentose. Filaments and interior of the involucre glabrous. Capsule deeply 3-carpellate, carpels but slightly keeled; seeds globular, lurid, densely whitish-maculate.

Shrub 6 feet high; internodes 2 to 3 inches long; involucres 5 lin. long; capsule 4 lin. diameter. Abundant about the port of Silam (coastal), flowers bright scarlet, April (649).

Pedilanthus Itzæus sp. nov. (Plate XVIII.) **Yaxhalalché.**

§ *Anomalus: Involucre of 5 more or less distinct parts.*

Frutescent, glabrous, 5 feet high. Branches virgate, fleshy. Leaves alternate, sessile, fleshy, ovate-lanceolate acute, deltoid at the base, 2 to 3 inches long, 1.5 to 2 inches broad, midrib prominent, lateral veins nearly at right angles. Inflorescence terminal, one or few light-pink involucres. Involucre bilabiate, the outer lips sarcous, shorter, composed of 3 lobes; 2 truncate-deltoid, gibbous and uniglandular at the base; the third an evident cohesion of two others into a large, emarginate, 2-glandular lobe; the inner lip thin, tubular, composed of two divisions; one small, entire; the other cleft into three veined lobes, the central one 3-lobed at the apex. Style columnar, short-exserted; stigmas three, aristate. Fruit . . . . .

Named in commemoration of the Itzæ, the ancient sacred people of the aboriginal Maya's.

Coastal. On cultivated lands at the port of Silam, March to June (452). Also collected by Sr. Valdez (*85*) without locality. Some of the specimens arrived at this institution full of vitality, and are now growing well in pots.

Phyllanthus sp.

Island of Cozumel, 1885 (*Gaumer, 103*). This specimen was not included in Professor Hemsley's enumeration of the Cozumel collection. Specimen in Herb. Gray. Harvard, communicated by Prof. Olliver.

PHYLLANTHUS ACUMINATUS Vahl.

A small tree, 10 feet high. Infrequent in the forests about Izamal, Sept. (797).

Phyllanthus Carolinensis Walt.

Shady places near Izamal, Feb. (508 in part).

Phyllanthus nutans Sw. **Xkahyuc. Xcaba-xpixtolon.**

Shrubby, 25 feet high. Abundant in brush lands about Izamal, Feb. to May (475). Common also at Temax, in fruit, May (685).

This is the "Phyllanthus, sp." collected on Cozumel in 1885 by Dr. Gaumer and noted on page 26.

RICINUS COMMUNIS Linn. *Higuerilla.* **Xkoch.***

Tree-like herb 10 to 20 feet high. Cultivated, and escaped to waste grounds, Izamal (457).

Tragia nepetæfolia Cav. **Popox.**

Trailing 3 feet. Common everywhere about Izamal, June (731).

CELASTRACEÆ.

Hippocratea celastroides H. B. K.? **Tulubalam.**

Woodlands near Merida (*Valdez, 75, 77*).

SAPINDACEÆ.

Cardiospermum molle H. B. K. **Huayunak.**

Vine 60 feet, abundant everywhere near Izamal, Jan. to Dec. (494).

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*The Maya name is misspelled on page 27.

VITACEÆ.

Vitis arborea Linn.
V. bipinnata T. & G. Vine 20 feet; abundant over stone walls near Izamal, June (716).

Vitis rhombifolia Baker. **Xtab-canil.**
Vine 30 feet; abundant on old stone walls near Izamal (835).

Urvillea ulmacea H. B. K. **Apaac.**
Vine 20 feet, abundant in brush lands about Izamal, Dec. to May (481). Abundant near Merida (*Valdez, 47*).

TILIACEÆ.

Corchorus pilolobus Link.
Herb 1 foot high, common in moist shady places near Izamal, Jan. to Sept. (766, 800).

MALVACEÆ.

Anoda hastata (Willd.) Cav. *Amapolite.*
Herb 3 feet high, flowers sky-blue, common in open lands about Izamal, July to March (334).

Hibiscus Berlandierianus Moric. **Hol.**
Widely branching shrub 4 to 6 feet high; roadside Mascab Pixoy to Xuku, Jan., 1895 (*Millspaugh, Armour Exped. 157*). Not *H. tubiflorus* as noted on p. 30.

Hibiscus Rosa-sinensis Linn. *Tulipan.*
In the scrub near Tikul, April, 1887 (*Millspaugh, 9*). Cultivated at Merida (*Valdez, 86*).

Hibiscus tubiflorus Moq. & Sesse. **Xtupkinil.**
Shrub 10 feet high, flowers bright crimson; abundant in the brush lands about Izamal, Jan. to Dec. (496).

Malachra palmata Mœnch.
M. triloba Desf. Herbaceous, 6 feet high; frequent at Xcholac, Nov. to March (418).

Malvaviscus arboreus Cav.
A form with scattered stellate pubescence upon both sides of the bicolor leaf, dense upon the young branchlets and the petioles. Shrub 10 feet high, abundant in the scrub lands generally, Izamal, Jan. to Dec. (580).

Sida acuta carpinifolia (L. f.) K. Schum. **Chi-chi-bé.**
Herb 3 feet high, very abundant everywhere about Izamal, Jan. to Dec. (811). About Merida (*Valdez, 38.*)

Sida ciliaris Linn.
Prostrate 10 inches, flowers reddish yellow, abundant in waste places about Izamal, July to August (779).

Sida diffusa H. B. K. **Xhauayxiu.**
Herb 10 inches high, frequent in barren places near Izamal, Sept. to March (861).

Sida rhombifolia Linn.
Herb 18 inches high, abundant in waste places about Izamal, Jan. to Dec. (308).

Sida supina pilosa (Cav.). **Hauyxiu.**
Prostrate or ascending, 18 inches, common in brush lands near Izamal, Jan. to Dec. (837).

BOMBACACEÆ.

CEIBA CASEARIA Medic. *Ceiba.* **Yaxché.**
C. pentandra (L.) Gaertn. Tree 100 feet high. General and abundant. Flowers lustrous pink, March (374).

CEIBA SCHOTTII Britt. & Baker fil. *Pochote.* **Piim.**
"Arbor ? Foliola digitatim disposita. Foliola (immatura ?) oblanceolata vel oblonga, apice acuta vel subacuminata mucronata rarius emarginata ad basin attenuata utrinque sparsissime pilis albidis obtecta, margine integra subtus subpallidiora, nervo medio prominente. Petiolus communis strictus, 1¼–1¾ poll. longus, petioluli ⅓–½ poll. longi. Flores actinomorphi. Calyx coriaceus bilobatus, externe glaber, interne pallide aureobrunneo-sericeus, circiter 1–1½ poll. longus. Petala haud expansa late linearia externe rufo-tomentosa, apice subobtusa, circiter 2½ poll. longa. Stamina (immatura ?) petalis breviora, filamenta glabra medium versus in tubum cylindricum connata, tubus fere 1 poll. longus. Antheræ ut in Cucurbitaceis undulato-plicatæ. Stylus glaber, stamina superans."

"Hab. Merida, Yucatan, *Schott.* 'Pochote.'"

"We are unable to determine the number of leaflets, they having become detached from the common petiole. It is allied to *C. æsculifolia* (= *Bombax æsculifolium* H. B. K. (*Eriodendron* DC.)) and *C. tomentosa.* The former differs by its leaflets being serrated at the margins; in the latter the leaflets are also serrated, and the staminal column is much shorter, and correspondingly the free filaments are longer. Also allied to *C. Burchellii* K. Schum., from Brazil, but this plant has a more cylindrical calyx. There is a plant in the Kew Herbarium, collected by Bernoulli and Cario in Guatemala, No. 3128, which is very closely allied, but the lobes of the calyx are slightly mucronate."

"We have two sheets in the British Museum Herbarium from Herb. Pavon, labelled 'Bombax erianthos de Mexico.' These seem to agree very nearly with the description based upon imperfect material of *Bombax æsculifolium* (H. B. K. Nov. Gen. v. 298). The leaflets are not, however, smooth below, but slightly ferruginous tomentose on the veins and at the base. The petals are broadly linear and ferruginous hirsute externally, and about

3 inches long, whereas Kunth describes those of *æsculifolium* as 'subquinquepollicaria'; he adds, however, 'nonnisi fragmenta floris vidi.' In the Pavon plant the style is hirsute towards the apex, while in *B. æsculifolium* it is described as glabrous." Jour. Bot. 34:173. April, 1896.

Though our specimens differ somewhat from the description given above, they agree perfectly with Schott's specimens deposited in the National Herbarium. I have, therefore, little hesitancy in placing our number under this species.

Dr. Gaumer says: "A very spiny tree 100 feet high, with crimson flowers. Abundant in forests about Izamal, May to June" (694). In his specimens the leaflets are 7, the two lower smaller and narrower; common petiole 3 to 4 inches long, strigose-hairy especially above and below; petiolules, .5 inch long, strigose-hairy. Leaves: lower third entire, middle third irregularly blunt serrate, upper third sharply incurved-serrate, prolonged into a slender mucronate tip from .5 to 1 inch long.

Carolinea alba Lodd. *Amapola blanca.* **Kuyché.**
Pachira alba Walt. Cultivated at Izamal, March. Flowers white, petals 5 to 6 inches long, leaves ovate, broadest at the upper third, veins and midrib glabrous (286). Commonly cultivated at Merida (*Valdez, 66*).

Carolinea fastuosa (DC.) Sesse. *Amapola colorada.*
Pachira fastuosa Decne. Cultivated at Izamal, March. Flowers red, petals 3 to 4 inches long; leaves ovate, broadest at the middle, hisped on the midrib and larger veins beneath. (287).

Quararibea Fieldii sp. nov. (Plate XIX.)
Leaves alternate, thick, broadly obovate, pointed; obtuse or cuneate at the base, strongly netted-veined especially prominent beneath; entire, smooth and shining on both sides, 6 to 12 inches long, 2.5 to 4.5 inches broad; petiole smooth, short, .75 inch long. Inflorescence sessile opposite the petioles; calyx bibracteate at the base, infundibuliform, fleshy, smooth externally, densely appressed-tomentose within, 1 inch long, 3-toothed at the summit, teeth deltoid, acute, recurved at the apex (one or two of the teeth often shallow or deep notched); petals 5, distinct, ligulate, minutely hairy, irregularly somewhat lobed at the rounded blunt apex, narrowed at the base, 1.90 inches long, .35 inch broad. Column of stamens tubular, slightly longer than the petals, distinctly cleft at the apex into 5 slightly spatulate lobes, each lobe bearing exteriorly 3 divergently 2-locular anthers, 5 other anthers forming a crown slightly below the base of the lobes. Style filiform somewhat longer than the stamen tube: stigma distinctly 2-lipped; ovary pyriform, short-stipitate, tomentose, 2-celled. Fruit unknown. Hacienda de Chabenché, rare, Aug. (879).

Our specimens combine to some extent many characters of § *Euquararibea* Baill., and § *Myrodia* Baill., as described by Schumann in Engler and Prantl's *Natür. Pflanzenfam.*

A beautiful white flowered tree 30 feet high, redolent of fenugreek. Named in honor of Mr. Marshall Field, whose generosity renders our work on the plants of this region possible.

STERCULIACEÆ

Ayenia ovata Hemsl.
Shrub 6 feet high, not common. Port of Silam, April (666).

AYENIA MAGNA Linn.
Shrub 6 feet high, flowers dark crimson ; common in the brush lands about Izamal, Sept. (823).

Ayenia pusilla Linn.
Herb 18 inches high, common along roadsides near Izamal, Sept. (818).

GUAZUMA TOMENTOSA H. B. K. **Pixoy.**
Tree 40 feet high, common everywhere on the peninsula. Izamal, April (684).

Helicteres Baruensis Jacq.
Shrub 15 feet high, abundant in brush and forest lands near Izamal, March to April (553). Sept. (799).

Melochia tomentosa Linn.
§ *Eumelochia*. Fruticose. Stems reddish-maculate, pyramidally branching; branchlets pubescent. Leaves bicolor, ovate-lanceolate, blunt, cordate-truncate at the base, stellate-pubescent above, stellate-tomentose beneath, broadly serrate-dentate, veins prominent below; petioles one-third to one-half the length of the blade. Stipules linear, ciliate, half the length of the petiole. Inflorescence in long peduncled cymes, usually with a single leaf near the base; pedicels slightly exceeding the calyx. Calyx persistent stellate-pubescent, lobes linear lanceolate, about half the length of the expanded corolla; corolla bright rose color changing to deep-blue on drying; petals spatulate. Stamens united only at the adnate base which is attached to the lower fourth of the petals. Ovary pyramidal, 5-angled, raised upon a short stipe; carpels stellate-pubescent, slightly pointed below externally; seeds obscurely triangular.

Shrub 10 feet high. Leaves 1.25 to 2 inches long, .5 to .25 inch wide; petioles .75 inch long; peduncles 1.5 inch, long, pedicels .25 inch long.

Another form with more characteristic inflorescence of *M. tomentosa* Linn., but with the same stellate pubescence and lanceolate sharply-dentate-serrate leaves is mingled with the above.

Common in brush lands near Izamal, Jan. to Dec. (487).

WALTHERIA INDICA Linn. *Malva del Monte.*
W. Americana Linn. Shrubby, 6 to 8 feet high, abundant in the brush lands about Izamal. Feb. to April (378, 472, 509). Common near Merida (*Valdez, 54*).

BIXACEÆ.

MAXIMILLIANA HIBISCOIDES (Humb. & Bonpl.) **Chum.**
Cochlospermum hibiscoides, Kunth. Tree 30 to 90 feet high, abundant in the forests about Izamal, March to April (433).

VIOLACEÆ.

Ionidium brevicaule Mart.
Herb 6 inches high, frequent along roadsides near Izamal, Sept. (855).

Ionidium oppositifolium Rœm. & Schult.
I. riparium H. B. K. Herb 20 inches high, flowers blue, common in woodlands about Izamal (791).

TURNERACEÆ.

Turnera diffusa aphrodisiaca (Ward) Urban. **Xmisibcoc.**
Shrubby, 10 feet high, flowers orange-yellow, common at Xcholac, March (538); and in the scrub lands about Izamal, Sept. to Oct. (859).

Turnera ulmifolia Linn. *Clavel de Oro.*
Shrub 12 feet high, not common, cultivated lands near Izamal (325).

PASSIFLORACEÆ.

Passiflora ciliata Aiton. *Passionaria.* **Xpochkac.**
Vine 6 feet, flowers white, tinged with purple; common on waste lands near Izamal, Feb. to June (466). Vine 4 feet uncommon at the port of Silam, April (630).

Passiflora gossypifolia Lindl.
Vine 4 feet; not common; moist, shady places near Izamal. Flowers pale purple, Aug. (793).

LOASACEÆ.

GRONOVIA SCANDENS Linn. **Lalmuch.**
Vine 10 feet, abundant in shady places near Izamal, Aug. to Dec. (770).

CACTACEÆ.

Cereus pectem-aboriginum Engelm.
Abundant at the port of Silam; 30 feet high, flowers purple, April (613).

LYTHRACEÆ.

Cuphea Trinitatis DC.
Herb 8 to 16 inches high, flowers opposite, interpetiolar supra-racemose and terminal, pedicels as long as the calyx. Common at Buena Vista Xbac, Aug. (785).

Punica Granatum Linn. *Granado.*
Cultivated at Merida, April, 1887 (*Millspaugh, 40*; *Valdez, 3*).

RHIZOPHORACEÆ.

RHIZOPHORA MANGLE Linn. *Mangle.* **Tapché.**
Tree 20 to 30 feet high, abundant at the port of Silam, April (654).

MYRTACEÆ.

Calycorectes Mexicanus Berg. **Pichiché.**
Tree 50 feet high, flowers creamy-white, common in brush and forest lands about Izamal, May to June (695).

PSIDIUM GUAJAVA Linn. *Guayabo.* **Pichi.**
Abundant both wild and cultivated near Merida (*Valdez, 95*). Tree 30 feet high, abundant at the port of Silam. April (631).

COMBRETACEÆ.

Conocarpus erectus arboreus Griseb. **Xkanché.**
Tree 30 feet high, very abundant at the port of Silam, April (642).

BUCERAS CATAPPA (L.) Hitch. *Almendra.*
Terminalia Catappa Linn. Tree 90 feet high, common in cultivation at Izamal, Feb. to March (470).

ONAGRACEÆ.

Jussieua suffruticosa Linn.
Shrubby, 10 feet high, common at Xcholac, Feb. (444).

UMBELLIFERÆ.

Fœniculum vulgare Mill. *Eneldo.*
Escaped to the campo south of Merida, April, 1887 (*Millspaugh, 4*). Cultivated at Merida (*Valdez, 99*).

MYRSINACEÆ.

Jacquinia armillaris Jacq. **Chacɔicikax.**
Shrub 15 feet high, glabrous. Leaves rosulate at the tips of the branchlets or lateral, spatulate, rounded-obtuse, sessile, coriaceous, margin revolute, entire, light-green above, pallid beneath, sparingly punctulate. Inflorescence in a terminal, nodding, corymbose-raceme, peduncle about the length of the leaves, pedicels the length of the peduncle, with an ovate-deltoid, ciliate scale at the base, glabrous. Calyx turbinate, persistent, the lobes orbicular with a thin, white, chartaceous margin. Corolla campanulate, the lobes ovate, entire, convex, thick, with a thin membraneous margin; appendages ovate, 3-ribbed above. Style short, stigma capitate. Berry olive-shaped, sharply tipped with the persistent style. Leaves, peduncles, and pedicels 1 inch

long; flower flame-colored 5 lin. long; calyx 3 lin. long; segments 2 lin. broad. Fruit woody, yellow, 10 lin. long, 6 lin. diameter.

Plentiful at the port of Silam (coastal), rare in the interior, May to June (531).

PLUMBAGINACEÆ.

Plumbago scandens Linn. *Yerba del Alacran.* **Ɔaimenɔai. Chakhak.**
Scandent 5 feet; abundant in the brush lands about Izamal, March (393). Near Merida (*Valdez, 73*).

SAPOTACEÆ.

Achras Sapota Linn. *Zapote.* **Ya.***
Tree 100 feet high; abundant at the port of Silam, April (639).

Chrysophyllum Cainito Linn. *Cayumito.*
Tree 60 feet high, widely cultivated for its fruit, Izamal, Aug. (780).

Lucuma multiflora A. DC. **Kanisté.**
Tree 50 feet high, commonly cultivated at Izamal, March to April (529).

Sideroxylon Mastichodendron Jacq.
Tree 80 feet high, very rare, only one seen, near Izamal, July (763).

APOCYNACEÆ.

Echites microcalyx A. DC.
Vine 10 feet, in brush lands about Izamal, rare, Aug. (881).

Plumeria rubra Linn. *Flor de Maya.*
Cultivated extensively at Tikul and Merida, April, 1887 (*Millspaugh, 29, 35*).

Rauwolfia heterophylla Willd. **Cabamuc.**
Shrub 3 feet high, abundant about Silam, April (610).

Tabernaemontana amygdalæfolia Jacq. *Jasmin de Perro.* **Uɔupec.**
Shrub 12 feet high, very common in the brush and forest lands about Izamal, March to April (555); cultivated at Merida (*Valdez, 62*).

Thevetia nereifolia Juss. *Campanilla.* **Aciɔ.**
Shrub 20 feet high, common both in forests and in cultivation, Jan. to Dec. (546); common near Merida (*Valdez, 87*).

Vinca rosea Linn.
Shrub 3 feet high, flowers pure white, cultivated at Izamal, Jan. to Dec. (380).

ASCLEPIADACEÆ.

Asclepias Curassavica L. *Cancerillo.* **Xpolkusil.**
Common in damp places near Merida (*Valdez, 61*).

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* The Maya **Tauch Ya** is wrongly applied to this species on p. 37. The *tauch ya* is a species said to yield a fruit, tarry-black inside. Not yet collected, and may prove to be a Diospyros.

Asclepias longicornu Benth. **Xcabalkunché.**
Frequent about Merida (*Valdez, 72*).

Gonolobus barbatus H.B.K.
Vine 10 feet, common on stone fences near Izamal, Sept. (803).

MARSDENIA MACULATA Hook. **Xenɔul.**
Vine 100 feet, common in forests about Izamal, May (686).

Marsdenia Mexicana Decne.
An uncommon vine in the brush lands about Izamal, Sept. (827).

Metastelma Schlechtendalii Decne.
Vine 18 feet, common in the brush lands about Izamal, Jan. to Dec. (539).

Philibertia Ervendbergii A. Gray.
Vine 6 feet, common on stone fences, Izamal, July to Aug. (880).

CONVOLVULACEÆ.

Convolvulus Grayi Rose. **Yaxkal.**
Extensively climbing over the bushes at Chichen Itza, Jan. (*Millspaugh, Armour Exped. 137b*).

CUSCUTA AMERICANA Linn.
Twining 6 feet, abundant on other plants in old fields near Izamal, (705).

Evolvulus alsinoides Linn. **Xiaxiu.**
Prostrate 6 to 18 inches, flowers purple, common in shady places near Izamal, Aug. to Sept. (805).

IPOMŒA BILOBA Forsk.
I. pes-capræ (L.) Roth. Vine 75 feet high, abundant at the port of Silam, April (662).

IPOMŒA BONA-NOX Linn.
Vine 30 feet, rare at Xcholac, Oct. to Feb. (330).

IPOMŒA COCCINEA Linn.
Waste places about Merida and Tikul, April, 1887 (*Millspaugh, 20*).

IPOMŒA JAMAICENSIS (Spreng.) G. Don.
Extensively climbing over shrubbery near the Monjas, Chichen Itza, Jan., 1895 (*Millspaugh, Armour Exped. 137a*).

Jacquemontia abutiloides Benth.
Vine 15 feet, common in the brush lands about Izamal, April, (574).

JACQUEMONTIA PENTANTHA G. Don. *Sombaritas Azul.* **Ak-ixiu.**
Vine 30 feet, very abundant in old fields near Izamal, Aug. to Dec. (331), common near Merida (*Valdez, 52*).

HYDROPHYLLACEÆ.

Nama Jamaicense Linn. **Xpacumpac.**

Herb 6 to 12 inches high, common in cultivated land about Izamal, Jan. to Dec. (326), common near Merida (*Valdez, 15*).

BORRAGINACEÆ.

Cordia Sebestena Linn. *Anachuita.* **Sac-copté.**

Tree 40 feet high, flowers bright scarlet, abundant at the port of Silam, April (634). At Merida (*Valdez, 21*).

Cordia cylindristachya (R. & P.) Roem. & Sch. **Xcopché.**

Shrub 15 feet high, common in brush lands near Izamal, May to Dec. (593).

Cordia dodecandra DC. *Ciricote.* **Kopté.**

Tree 100 feet high, flowers bright orange-red, in forests and in cultivation, Izamal, Jan. to Dec. (526).

Cordia globosa (L.) H.B.K.

Tree-like 30 feet high, flowers greenish white; common in brush lands about Izamal, Sept. (801, 745).

Ehretia tinifolia Linn. *Roble.** **Beec.**

A large tree 90 feet high, abundant in the forests about Izamal, evergreen, June (381, 464), common near Merida (*Valdez, 42*).

Heliotropium Curassavicum Linn.

Herb 2 to 6 inches high, common at the port of Silam, April (644).

Heliotropium inundatum Sw. **Nemax.**

Shrub 10 feet high, on open lands near Izamal, not common, June to July (747).

Heliotropium parviflorum Linn. *Rabo de Mico.* **Xnemax.**

Herb 2 to 4 feet high, common on cultivated lands near Izamal, Jan. to Dec. (324). Common near Merida (*Millspaugh*, 1887, *30*. *Valdez, 32*).

Heliotropium phyllostachyum Torr.

Herb 12 feet high, not common. Chique road near Izamal, Aug. (790).

Tournefortia volubilis Linn. **Xulkin.**

Young branches densely strigose-tomentose; leaves bicolor, short petioled, ovate-lanceolate, obliquely rounded at the base, sharply pointed, scattered strigose-hairy above especially on the veins, densely strigose-pubescent beneath. Inflorescence axillary, that at the ends of the branches forming a dense paniculate mass of unilateral slender spikes having a common zigzag axis. Flowers very short pedicelled; calyx strigose-hispid, 5-fid nearly

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*Although the Spanish word *Roble* is principally applied to the oak, it is also used to designate almost any tree having a hard, strong wood.

to the base, divisions linear; corolla tube hypocrateriform, strigose-hispid, nearly twice as long as the calyx, and longer than the ligulate lobes which are expanded at the base. Stamens included, inserted below the throat of the corrolla; anthers narrowly-lanceolate connivant at their tips; Stigma clavate, pappilose. Pyrenæ 4 (2) globose, minutely reticulate with anastomosing rugæ. Most of the fruit pathological.

Peduncles very short, one-quarter the length of the calyx; calyx ¾ lin. long; corolla tube 1 lin. long, segments ¾ lin.

Twining 10 to 15 feet over stone walls near Izamal, Jan. to Dec. (363).

TOURNEFORTIA GNAPHALODES (Jacq.), R. Br.
Shrub 4 feet; abundant at the port of Silam, April (637).

VERBENACEÆ.

AVICENNIA NITIDA Jacq.
Low tree 20 feet high; common in mangrove thickets at the port of Silam, April (619).

AVICENNIA OFFICINALIS Linn.
A. tomentosa Jacq. With the last species (635).

Callicarpa acuminata H. B. K. **Sac pukim.**
Shrub 20 feet high; abundant in forest and brush lands near Izamal, Aug. to March (870).

Clerodendron aculeatum (L.) Griseb. **Yoimte.**
Shrub 10 feet high; common in open lands near Izamal, July to Aug. (875, 736).

Clerodendron fragrans Vent. *Jasmin de Italia.*
Cultivated at Merida, April, 1887 (*Millspaugh, 22*). Tree 6 feet high, common in cultivation, Izamal, June (724).

Cornutia pyramidata Linn.
Shrub 10 feet high, Izamal, Sept. (822).

DURANTA REPENS L.
Duranta Plumieri Jacq. *D. Xalapensis* H. B. K. Shrub 15 feet high, flowers light blue; abundant in the brush and forest lands about Izamal, March to July (577).

LANTANA CAMARA Linn.
Waste grounds near Izamal (860).

LANTANA INVOLUCRATA Linn.
L. odorata Linn. Herb 16 inches high; common in shady places near Izamal, Sept. to Oct. (807).

Lippia Berlandieri Schauer. **Tarbay.**
Waste grounds near Tikul, April, 1887 (*Millspaugh, 41*).

Lippia dulcis Trev. *Orozus.*
Trailing 4 feet, rarely cultivated at Izamal, Jan. to Dec. (510).

Lippia geminata Kunth?
Shrubby, 20 feet high, *corolla white with a yellow throat;* abundant in brush lands near Izamal, Jan. to Dec. (830).

Lippia geminata H.B.K.
Shrubby, 8 feet high, common in brush lands near Izamal, March (478), agrees with the Tamaulipas form (*Pringle, 960*). Shrubby, 12 feet high, very abundant in old fields about Izamal, Jan. to Dec. (503); agrees with the Coahuila form (*Pringle, 215*).

Lippia graveolens H.B.K. *Oregano.*
Shrub 30 feet, largely cultivated at Izamal, Sept. to Oct. (832).

Lippia nodiflora (L.) Michx.
Ascending herb 3 feet high; abundant at the port of Silam, April (621).

Lippia stœchadifolia (L.) H.B.K. *Té del Pais.* **Cabalyaxnic.**
Shrubby, 6 feet high; common in cultivation at Izamal, Jan. to Dec. (500). Common near Merida (*Valdez, 25*).

Petrea arborea H.B.K. **Yoxop-Ɔimin.**
Arborescent climber 30 feet; flowers bluish-purple; common in the forests about Izamal, Feb. to June (379).

Our plant differs in no essential from the description or from specimens seen, except that it is a climbing vine and that the pedicels are as described by Schaur—from three to four times longer than the calyx.

Priva lappulacea (L.) Pers. *Berbenilla.*
Priva echinata Juss. Herb 3 feet high; abundant on waste and uncultivated lands near Izamal, Jan. to Dec. (364).

A lower form with smaller, less uncinate leaves, on open lands near Izamal (394).

Tamonea scabra Cham. & Schl.
Herb 2 feet high; abundant on waste lands about Izamal, Jan. to Dec. (834 b).

Valerianodes Jamaicensis (L.) Kuntze.
Stachytarpheta Jamaicensis, Vahl. Herb 3 feet high, uncommon in the Woodlands about Yaxcaba, June (744). Common near Merida (*Valdez, 44*).

Vitex pyramidata Robnsn. **Yaxnic.**
Tree 50 feet high, flowers bright purple; uncommon in the forests about Izamal, March to April (607).

Differs from the type in Gray. Herb. only in stature and length of petiolules.

LABIATEÆ.

Clinopodium Brownei (Sw.), Kuntze. *Poleo.*
Micromeria Brownei, Benth. Herb 3 feet high, abundant on cultivated grounds near Izamal, Jan. to Dec. (499). Common near Merida, (*Valdez, 35*).

Ocimum Basilicum Linn. *Albahaca.*

Herb 8 inches high, commonly cultivated. Izamal, March to April (516). Cultivated and escaped near Merida (*Valdez, 45*).

Ocimum canum Sims. *Albahaca silvestre.* **Cacaltun.**

Herb 1 to 2 feet high, common about Merida. April 1887 (*Millspaugh, 5*).

Ocimum micranthum Willd. **Xcacaltum.**

Herb 6 to 18 inches high; very abundant everywhere about Izamal. July to Nov. (889). Stony places near Merida, common (*Valdez, 1*).

The *Teucrium inflatum* noted on page 43 should be referred to this species.

Ocimum Selloi Benth. *Apazote.*

"Frequent in many parts of the peninsula." (*Valdez, 41*).

SALVIA COCCINEA Juss. **Ɔabɔiɔ.**

Herb 2 to 6 feet high, abundant in old fields about Izamal, Jan. to Dec. (453).

SALVIA OCCIDENTALIS Sw. *Thé du Cozumel.* **Cak-nep.**

Waste grounds near Merida. April 1887 (*Millspaugh, 27; Valdez, 55*).

SOLANACEÆ.

CAPSICUM BACCATUM Linn. *Chile del Monte.* **Xmax.**

Brush lands near Merida, April 1887 (*Millspaugh, 15*).

CAPSICUM FRUTESCENS Linn. *Chile del Monte.* **Xmax.**

Herbaceous, 5 feet high. Common in brush and forest lands about Izamal, (864).

CESTRUM DIURNUM Linn. *Juan de Noche.*

A cultivated shrub 20 feet high, Izamal, June (703).

Datura Metel Linn. *Chamico.* **Xtohcu.**

Herb 4 feet high, commonly cultivated at Izamal, Jan. to Dec. (454).

Physalis Barbadensis obscura (Michx.) Rydb.

Herbaceous, 3 feet high. Along the Sitilpech road near Izamal, Aug. to Sept.; uncommon (867).

Physalis mollis cinerascens (Dunal). Gray. **Xpahabcan.**

Herbaceous, 1 foot high. Common in the brush-lands about Izamal; flowers lemon-yellow, Feb. (482).

Solanum Seaforthianum Andr. *Piocha.*

Vine 60 feet, infrequently cultivated at Izamal, Jan. to Dec. (841).

SOLANUM TORVUM Sw. *Espina.*

Waste grounds near Tikul, Apr. (*Millspaugh, 2*).

SOLANUM VERBASCIFOLIUM L. **Tom-pap. Xtuhuy.**

Common about Merida (*Valdez, 28*).

Schwenkia Americana Linn.
Herb 3 feet high, in shady places near Izamal, July to Aug. (773).

SCROPHULARIACEÆ.

CAPRARIA BIFLORA Linn. *Agrimonia silvestre. Claudiosa.*
Both the small crenate-dentate, and the larger serrate-dentate forms, 6 feet high, common on open lands near Izamal, Jan. to Dec. (348). "Common near Merida" (*Valdez, 26*).

Capraria saxifragæfolia Cham. & Schl.
Shrubby, 3 feet high, abundant in open places near Izamal, Jan. to Dec. (520).

Castilleja arvensis Cham. & Schl.
Old fields near Tikul, April, 1887 (*Millspaugh, 42*).

Castilleja communis Benth.
Herb 16 inches high, flowers dark crimson, rare. North aspect of the Great Mound at Izamal, Feb. (416).

MONNIERA PROCUMBENS (Mill.) Kuntze.
Erinus Mill., *Herpestis chamædryoides* H. B. K. Herb, 8 inches high, common along roadsides near Izamal (474).

Russelia juncea Zucc. *Corallilo.*
Moist places in woodland, two miles south of Tikul, April, 1887 (*Millspaugh, 17*).

Russelia sarmentosa Jacq.
Herbaceous, 6 feet high, common about the shallower cenotes near Izamal, Feb. to May (403).

BIGNONIACEÆ.

CRESCENTIA CUJETE Linn. *Güiro.* **Huas.**
Tree 25 feet high. Abundant at Silam, and near many of the cenotes, April (437).

TECOMA STANS (L.) Juss. **Xkanlol.**
Shrub 20 feet high, very common in the brush lands about Izamal, Sept. to Feb. (332). Plentiful near Merida (*Valdez, 39*).

PEDALIACEÆ.

MARTYNIA DIANDRA Glox. **Chucchicil.**
Herb 4 feet high, flowers pink, common along the Tecal road near Izamal, Sept. (868).

ACANTHACEÆ.

Aphelandra pectinata Willd.
Shrub, 15 feet high, common in brush and forest near Izamal, Oct. to March (300).

Beloperone violacea Planch. & Linden.
Herb 3 feet high. Rare, at Buena Vista, Xbac. Flowers deep rose-purple, Aug. (784).

BLECHUM BROWNEI Juss.
Common in waste places near Merida (*Valdez, 84*).

Blechum blechoides (Sw.) Hitch. **Akabxiu.**
Blechum laxiflorum Juss. Herb, 2 feet high, abundant in shady places near Izamal, Jan. to Dec. (358).

DIAPEDIUM ASSURGENS (L.) Kuntze. **Nimis.**
Dicliptera Juss. Shrubby, 6 feet high, very abundant in open lands about Izamal, Nov. to March (413). "Common throughout the peninsula" (*Valdez, 33*).

TUBIFLORA SQUAMOSA (Jacq.) Kuntze. **Xcabalxaan.**
Verbena, Jacq. The caulescent form with truncate, long-aristate bracts (*Elytraria frondosa* H.B.K.); 8 to 12 inches high, common in brush and waste lands about Izamal, July to Feb. (311).

The acaulescent form with the bracts simply prolonged into an awl-shaped point (*E. tridentata* Vahl); 2 to 4 inches high, along roadsides at Xcholac, March (537). Near Merida (*Valdez, 68*).

Ruellia albicaulis Bert. **Ɔakalback.**
Shrub, 3 feet high, common in rocky places about Izamal, Oct. to May (360).

R. paniculata Linn. Included in Contrib. I, p. 46, is this species.

Ruellia tuberosa Linn. *Maravilla del Monte.* **Cabal-yaxnic.**
Herb 12 to 15 inches high, flowers bright blue, abundant in open grounds near Izamal, July (488, 759). Frequent in waste ground near Merida, April, 1887 (*Millspaugh, 13; Valdez, 23*).

Ruellia Tweedyana (Nees) Griseb? **Yamcotil.**
Leaves ovate to ovate-lanceolate, acute or acuminate, obtuse or emarginate, entire or slightly repand toothed, slightly and sparsely pubescent above, pale and minutely punctulate below, decurrent on the petiole, which is about one-fourth the length of the blade. Inflorescence terminal on the branchlets the 1 to 2 blue flowers cessile. Calyx deeply 3?-fid, two of the divisions being bifid for one-quarter their legnth; i. e., calyx imperfectly 5-fid. Ovules 4.

A spreading herb two feet high, common in shady situations near Izamal, Oct. to March (384). Common near Merida (*Valdez, 24*).

SIPHONOGLOSSA SESSILIS Oerst.
Dianthera sessilis Griseb. Herb 1 foot high, flowers bright pink. In sheltered places near Izamal, Feb. to June (351).

TETRAMERIUM COSTATUM (A. Gray).
Henrya A. Gray. Herb 1 to 2 feet high, abundant in brush lands about Izamal, Jan. to May (368).

Tetramerium hispidum Nees. **Xhuayumkak.**
Shrubby, 2 feet high, abundant in open lands about Izamal, Oct. to March (398). Common near Merida (*Valdez, 70*).

PLANTAGINACEÆ.

Plantago major Linn. *Llanten.*
Herb 6 to 14 inches high, common on cultivated grounds near Izamal, Jan. to Dec. (440). "Cultivated and escaped at Merida." (*Valdez, 90*).

RUBIACEÆ.

Chiococca racemosa Linn. **Kanchac-ché.**
Tree ! 40 feet, common in the forests about Izamal, June (729) Shrub ! 20 feet, in fruit Aug. (781).

Crusea calocephala DC.
Herbaceous, 3 feet high, abundant in brush and forest lands about Izamal Sept. to Oct. (831).

Diodia teres Walt.
Shady places about Izamal (807 in part.)

Ernodea littoralis Sw.
Shrub, 6 feet high, common at the port of Silam, April (628).

Guettarda elliptica Sw.
Tree, 50 feet high, common in the forests about Izamal July (753).

Hamelia patens Jacq. **Kanan.**
Shrub, 10 feet high, abundant everywhere, Izamal, June (727).

Morinda Roioc Linn. **Xo-yen-cab.**
Shrub, 6 feet high, abundant in the brush lands about Izamal (362).

Randia Xalapensis Mart. & Gal. **Mehemkax. Kax.**
Shrub, 10 to 15 feet high, common in forests about Izamal, March to June (506, 713).

Spermacoce tenuior, Lam.
Herb 3 feet high, common in brush lands about Izamal, July to Feb. (316).

Spermacoce verticillata Sw. **Xniɔox.**
S. Hænkeana Hemsl. Herbaceous, 3 feet high, common on barren grounds about Izamal, Sept. to Oct. (810). Common about Merida (*Valdez, 74*).

CAPRIFOLIACEÆ.

Sambucus Canadensis Linn. *Sanco.*
Shrub, 6 to 10 feet high, cultivated at Merida, April, 1887 (*Millspaugh, 37*; *Valdez, 46*); also cultivated at Izamal, May to June (591). The lower leaves 3-divided.

CUCURBITACEÆ.*

CAYAPONIA ALATA Cogn.

Vine, 10 feet, rare, Izamal, Aug. (888).

Corallocarpus emetocatharticus Cogn. **Kiscan.**

(*C. glomeratus* Cogn. Cucurb., DC. Monogr. Phaner. 3. *Anguria*, Eggers). Near Merida (*Schott, 334*). Vine, 20 feet, abundant in brush and forest lands about Izamal, Dec. to June (597).

Corallocarpus Millspaughi Cogn., sp. nov. Plate XX.

Foliis membranaceis, longiuscule petiolatis, utrinque glaberrimis et minute sparseque punctatis, late ovato-triangularibus, indivisis vel obscure angulato-subtrilobatis, margine integerrimis, apice abrupte acutis et minute apiculatis, basi leviter lateque emarginatis, racemis masculis petiolo multo brevioribus, submultifloris; floribus longiuscule pedicellatis; calcyce subtiliter puberulo, tubo anguste campanulato, lobis late ovato-triangularibus, apice rotundatis. Rami robustiusculi, elongati, simplices, carnosi, glabri, laeves, teretiusculi, ad nodos leviter geniculati. Petiolus gracilis, striatus, vix puberulus, 2.5 to 3 cm. longus. Folia laete viridia, 5-7 cm. longa, 5.5 to 8 cm. lata; sinus basilaris latissime rotundatus, .5—1 cm. profundus, 3 to 4 cm. latus. Cirrhi gracilis, longiuscule, teretes, glabri. Pedunculus communis masculus satis gracilis, glaber simplex vel bifurcatus, 6-20-florus, 6 to 15 mm. longus; pedicelli capillares, patuli, tenuiter puberuli, 3 to 6 mm. longi. Calycis tubus basi acutus, 5 mm. longus, apice 2 mm. latus; lobi erecti, 1 mm. longi. Corolla extus brevissime denseque puberula. Flores feminei et fructus ignoti.

"Notwithstanding the absence of the female flowers and the fruits of this plant I am able to refer it satisfactorily to the genus *Corallocarpus*. It is near *C. emetocatharticus* Cogn. (in Bull. Soc. Bot. Belg. XXX. part 1, p. 279), from which it differs in its more entire leaves completely glabrous above, and its male flowers being not sessile in the glomerules but very short pedicillate."

In the scrub near Chichen Itza, Jan., not in flower (*Millspaugh, Armour Exped., 215*). Vine, 20 feet, common in the forest and brush lands about Izamal, Aug. to Dec. (842).

Cyclanthera ribiflora Cogn.

Fields about Merida, April (*Millspaugh, 21*). Izamal, June (231).

Maximowiczia tripartita Cogn.

Vine, 6 feet, common on old walls and fences about Izamal, Jan. to Dec. (415, 586).

CAMPANULACEÆ.

ISOTOMA LONGIFLORA (L.) Presl. *Lagrimas de San Diego.*

Herb 1 foot high; not common. Cultivated lands, Izamal, Jan. to Dec. (323). Common in moist places (*Valdez, 27*).

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* Determined by Professor Alfred Cogniaux.

COMPOSITÆ.

Ageratum conyzoides Linn. *Bakelus.*
Common about Merida (*Valdez, 13*).

AGERATUM CORYMBOSUM Zucc. **Taulum.**
Herb 2 feet, abundant in open lands near Izamal, Jan. to Dec. (395).

AMELLUS ASPERA (Jacq.) Kuntze.
Calea Jacq., *Melanthera deltoidea* Michx. Scrub lands about Izamal, Jan. (*Millspaugh, Armour Exped., 175*).

AMELLUS NIVEUS (Linn.) Kuntze.
Melanthera hastata, Michx. Herb 6 feet high, common on old fields about Izamal, July to March (404).

AMBROSIA HISPIDA Pursh.
A. crithmifolia DC. Herb 6 feet high, very abundant at the port of Silam, April (680).

Artemisia Mexicana Willd. *Agenjo del Pais.* **Sisim.**
"Frequent throughout the peninsula" (*Valdez, 40*).

Aster Novi-Belgii Linn.
Herb 1 foot high, flowers pale blue. Cultivated at Izamal, July to Dec. (857.)

Bidens leucantha Willd.
Herb 4 feet high, very common in waste lands, flowers pure white, Izamal, Jan. to Dec. (451). A smaller leaved form, 2 feet high, at the port of Silam, April (632).

Cnicus Mexicanus Hemsl.
Herb 4 feet high, common at the port of Silam, April (676).

Dysodia cancellata (Cass) A. Gray.
Herb 3 feet high, common in open places near Izamal, Sept. to Jan. (304).

Eclipta erecta Linn.
Herb 6 feet high; in old fields near Izamal, June (730).

Elvira Martyni Cass.
E. biflora DC. Herb 3 feet high; abundant on uncultivated and waste lands near Izamal, Sept. to Feb. (367.)

Erechthites sp. *Llanten silvestre.*
Not in flower. Common in waste lands near Merida (*Valdez, 48*).

ERIGERON CANADENSIS Linn.
Herb 3 feet high, frequent in waste places about Izamal, July to Dec. (846).

Eupatorium albicaule Sch. Bib.
Shrubby, 10 feet high, frequent in the brush lands about Izamal, Sept. to March (608, 824).

This is the first *Eupatorium* sp. mentioned on page 51 of contrib. I.; being Dr. Gaumer's No. *122* from Cozumel, and Johnson's "Yucatan and Tabasco" specimen contributed by Dr. Torrey to Kew in 1850. It agrees with the type collected at Papantla, Mexico, by Liebman (*88*) in 1841; and with Mr. Pringle's *3103* collected in Mexico in 1890.

Eleutheranthera divaricata Rich. *Sanguinaria.* **Xkantumbub.**
Melampodium paludosum H. B. K. *M. divaricatum* (Rich.) DC. Herb 4 feet high, abundant in old fields near Izamal, Sept. to Jan. (563). Abundant near Merida (*Valdez, 5*).

Eupatorium drepanophyllum Klatt.
Island of Cozumel (*Gaumer*, 122*). Klatt, K.K.Natur. Hofmus. 1894 p. 356.

Eupatorium populifolium H.B.K. *Chioplé.*
Herb 10 feet high, in general cultivation at Izamal, March (552).

Our specimens agree best with the Guatemalan forms.

Eupatorium qaudrangulare DC.
"Common both wild and in cultivation." (*Valdez, 92*).

Helenium quadridentatum Labill. *Manzanilla.*
Common in waste places about Merida (*Valdez, 49*).

Lagascea mollis Cav.
Waste lands near Merida (*Valdez, 29*).

Melampodium hispidum H.B.K.
An infrequent herb, 4 feet high, in the forests about Izamal (789).

In our specimens the leaves are coarsely and distantly blunt-serrate.

Mikania scandens Willd.
Vine 15 feet, flowers white, common at Xcholac, June to Feb. (443).

Montanoa hibiscifolia C. Koch.
Herb 4 to 9 feet high, flowers pure white. Clearing north of Mascab Pixoy, Jan. (*Millspaugh, Armour Exped. 155*).

Parthenium Hysterophorus Linn. *Altanisa.*
Waste lands near Tikul, April 1887 (*Millspaugh, 18*). Herb 18 inches high, very abundant everywhere near Izamal, Jan. to Dec. (558). Common about Merida (*Valdez, 12*).

Pectis prostrata Cav.
§ *Peetidiformes.* Low, branches spreading, pubescent in two lines. Leaves linear-lanceolate, sessile, acute, densely punctate-glandular beneath, minutely and regularly serrulate on the thickened margin, setose near the base, setæ long filiform. In-

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Not Sauwne, as Dr. Klatt has it.

volucre solitary, cylindrical, axillary, short pedicelled, the 5 scales linear, obtuse, strongly keeled ; florets, 12 : ray-florets, 5 ; ray ovate, emarginate, style bifid, scales of pappus, 2 ; membraneous, lanceolate, awned, equaling the tube. Disk florets crenately 5-toothed, pappus 5-awned, awns lanceolate-linear aristate, stigma. clarate. Achemia 4-angled, pilose with scattered lax hairs.

Herb 6 inches high, branching diffusely from the rootstalk ; leaves, 6 lin. long, 1 lin. broad ; involucre 2 lin. long, scales .75 lin. broad.

Along roadsides near Izamal, July to Aug. (778).

Pectis punctata Jacq.

Herb 3 feet high, common along the Chique road near Izamal, Sept. (887).

PLUCHEA ODORATA (L.) Cass. *Santa Maria.* **Chalché.**

Shrubby, 15 feet high, widely cultivated at Izamal, Jan to Dec. (399). Common near Merida (*Valdez, 36*).

Porophyllum nummularium DC.

Shrubby, 15 feet high, common in the brushlands about Izamal (523).

Sanvitalia procumbens Lam. *Sanguinaria de flores negros.*

Abundant in waste places about Merida (*Valdez, 63*).

Senecio salignis DC.

Old fields about Tikul. April 1887 (*Millspaugh, 28*).

Sonchus oleraceus Linn. *Achicoria. Lechuga silvestre.*

Herb 4 feet high, frequent on cultivated grounds about Izamal, July to March (310). Frequent about Merida (*Valdez, 81*).

Stephanomeria runcinata Nutt.

Herb 3 feet high, common in old corn fields at Silam, April (877).

Tagetes patula Linn. **Xpuhuc.**

Herb 3 to 6 feet high, very abundant in old fields about Izamal, Oct. to Nov. (476).

Tithonia diversifolia (Hemsl.) A. Gray. *Chioplé.*

Wild and cultivated near Izamal (*Valdez, 93*).

Tithonia tubæformis Cass.

Herb 18 inches high, common on open grounds near Izamal, July to March (489, 518.)

TRIDAX PROCUMBENS Linn. *Yerba San Juan. del Monte.*

Herb 20 inches, very common in waste places near Izamal, Jan. to Dec. (341). Common near Merida (*Valdez, 89*).

Tridax procumbens canescens DC.

Herb 18 inches, abundant in open places near Izamal, Jan. to Dec. (400).

TRIXIS RADIALE (L.) Lag. **Tokaban.**
Shrub 15, common in open lands near Izamal, Jan. (397). Common near Merida (*Valdez, 10*).

VIGUIERA HELIANTHOIDES H. B. K. **Tah.**
Abundant near Merida (*Valdez, 71*).

Wedelia hispida H. B. K.
Herb 3 feet high, abundant on old fields near Izamal, Sept. to Nov. (410 b).

Our specimens compare best in the involucre with Pringle's Nueva Leon, *2264*, and in leaves with Palmer's Soledad, *631*.

Zexmenia hispida A Gray. **Sahum.**
Herb 4 feet high, abundant in waste places near Izamal (826).

ORDERS.	Genera.	Species.	Mainland.	Insular Species.			
				Cozumel.	Mugeres.	Holbox.	Cankun.
Acanthaceæ	10	16	15	3	..	..	..
Amaranthaceæ	7	13	10	2	1	1	..
Amaryllidaceæ	3	3	3	1	..	..	..
Anacardiaceæ	3	4	1	4	..	..	..
Anonaceæ	1	4	3	1	..	..	..
Apocynaceæ	7	11	7	2	1	..	..
Araceæ	1	1	1	..	..	..	..
Aristolochiaceæ	1	2	2	..	..	..	..
Asclepiadaceæ	8	12	10	2	1	1	..
Asperifoliaceæ	4	14	11	4	4	..	1
Bignoniaceæ	4	5	2	2	1	..	..
Bixaceæ	3	3	3	..	..	..	..
Bombacaceæ	4	7	7	..	..	..	..
Bromeliaceæ	6	20	18	1	..	1	..
Burseraceæ	1	2	2	1	1	..	..
Cactaceæ	2	5	2	2	3	..	..
Campanulaceæ	1	1	..	1	..	..	..
Cannaceæ	1	1	..	1	..	..	..
Capparidaceæ	3	5	5	..	..	..	..
Caprifoliaceæ	1	2	1	1	..	..	1
Caricaceæ	2	2	2	1	1	..	1
Caryophyllaceæ	1	1	1	..	..	..	..
Casuarinaceæ	1	1	1	1	1	..	1
Celastraceæ	3	3	1	1	1	..	..
Chenopodiaceæ	2	2	..	..	..	2	..
Combretaceæ	3	3	1	2	..	1	..
Commelynaceæ	3	4	2	2	1	..	..
Compositæ	48	70	52	22	2	2	..
Convolvulaceæ	5	16	10	9	..	..	1
Crassulaceæ	1	1	1	..	..	..	..
Cruciferæ	3	3	3	1	1	..	..
Cucurbitaceæ	8	12	10	1	..	..	..
Cycadaceæ	1	1	1	..	..	..	..
Cyperaceæ	6	11	6	3	2	1	..
Dioscoreaceæ	1	2	1	1	..	..	..
Euphorbiaceæ	11	52	43	13	5	2	1
Filices	9	12	7	5	..	..	..
Fungi	8	8	8	..	..	..	..
Gentianaceæ	1	1	..	1	..	1	..
Goodeniaceæ	1	1	..	..	1	1	..
Gramineæ	17	28	22	4	1	4	..
Guttiferæ	1	1	..	1	..	..	..
Hepaticæ	4	5	3	2	..	..	..
Hippocrateaceæ	1	1	..	1	..	..	..
Hydrophyllaceæ	2	2	1	1	..	..	..
Iridaceæ	1	1	1	..	..	..	..
Labiateæ	5	11	8	3	2	..	..
Lauraceæ	3	3	1	1	..	1	..
Leguminosæ	33	100	73	30	9	..	..
Liliaceæ	5	5	5	..	..	..	..
Loasaceæ	1	1	1	..	..	..	..
Loranthaceæ	2	2	2	..	..	..	..
Lycopodiaceæ	1	1	1	..	..	..	..
Lythraceæ	3	3	3	1	..	..	..
Malpighiaceæ	5	9	6	3	..	..	..

ORDERS.	Genera.	Species.	Mainland.	Insular Species.			
				Cozumel	Mugeres.	Holbox.	Cankun.
Malvaceæ	7	18	16	2	..	..	..
Melastomaceæ	3	3	3	..	..	..	..
Meliaceæ	3	4	2	2	..	..	..
Menispermaceæ	1	1	1	..	..	..	..
Moraceæ	3	7	7	1	1	..	..
Moringaceæ	1	1	1	..	..	..	..
Musaceæ	1	2	2	2	1	..	2
Musci	7	7	6	2	..	..	..
Myrsinaceæ	2	4	2	2	..	1	..
Myrtaceæ	4	4	3	1	..	..	..
Nyctaginaceæ	4	5	5	1	..	..	..
Nymphaceæ	2	2	2	..	..	..	..
Olacaceæ	1	1	1	..	..	..	..
Onagraceæ	1	1	1	..	..	..	..
Orchidaceæ	2	3	3	..	..	..	..
Oxalideæ	2	2	2	..	..	..	..
Palmeæ	3	4	2	3	4	..	3
Pandaneæ	1	2	2	..	..	..	..
Papaveraceæ	1	2	2	1	..	..	..
Passifloraceæ	1	3	1	2	1	..	..
Pedaliaceæ	1	1	1	..	..	..	..
Phytolaccaceæ	2	7	5	2	2	..	..
Piperaceæ	2	3	3	..	..	..	..
Plantaginaceæ	1	1	..	1	..	..	..
Plumbaginaceæ	1	1	1	..	..	..	..
Polygalaceæ	1	1	1	..	..	..	..
Polygonaceæ	3	5	2	3	1	..	..
Portulaccaceæ	3	5	5	..	..	..	..
Ranunculaceæ	1	3	3	1	..	..	..
Rhamnaceæ	1	1	1	..	..	..	..
Rhizophoraceæ	1	1	..	1	..	1	1
Rubiaceæ	18	27	16	11	3	3	..
Rutaceæ	7	11	6	4	2	..	..
Sapindaceæ	6	8	6	2	..	..	..
Sapotaceæ	2	6	5	1	1	..	..
Scrophulariaceæ	5	11	7	4	1	1	..
Simarubaceæ	2	2	1	1	1	1	..
Smilaceæ	1	1	..	1	..	..	..
Solanaceæ	7	17	10	7	2	2	..
Sterculiaceæ	7	11	9	4	..	..	..
Tiliaceæ	2	3	3	..	..	..	..
Turneraceæ	1	2	2	..	..	..	..
Umbelliferæ	1	1	1	..	..	..	..
Urticaceæ	4	4	4	..	..	..	..
Verbenaceæ	14	20	18	9	3	3	..
Violaceæ	2	3	3	..	..	..	..
Vitaceæ	2	5	4	1	..	..	..
Zygophyllaceæ	2	3	2	1	..	..	..
Totals: Orders, 102	418	734	527	211	62	30	12

SUMMARY.*

Mainland Flora		527 species.
Insular Flora	Cozumel 211 Sand Islands 104	315 "

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*This summary and the tables include all published species.

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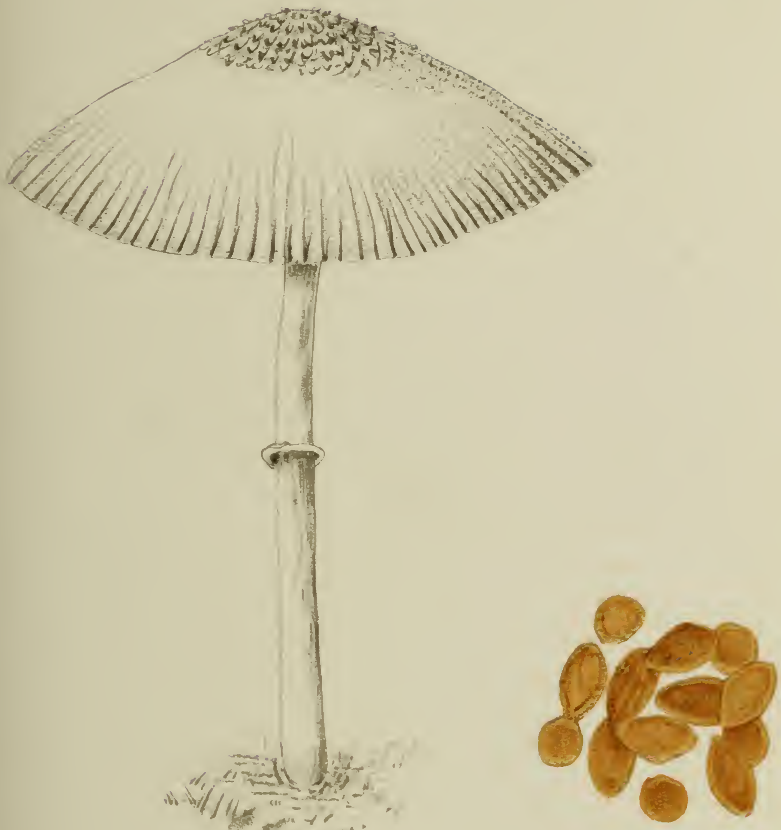
PL. VIII. AGARICUS YUCATANENSIS E. & E.

1. Whole plant, natural size.
2. Spores, magnified.

(See page 285.)



AGARICUS YUCATANENSIS, E. & E.

PL. IX. ASTERINA YUCATANENSIS E. & E.

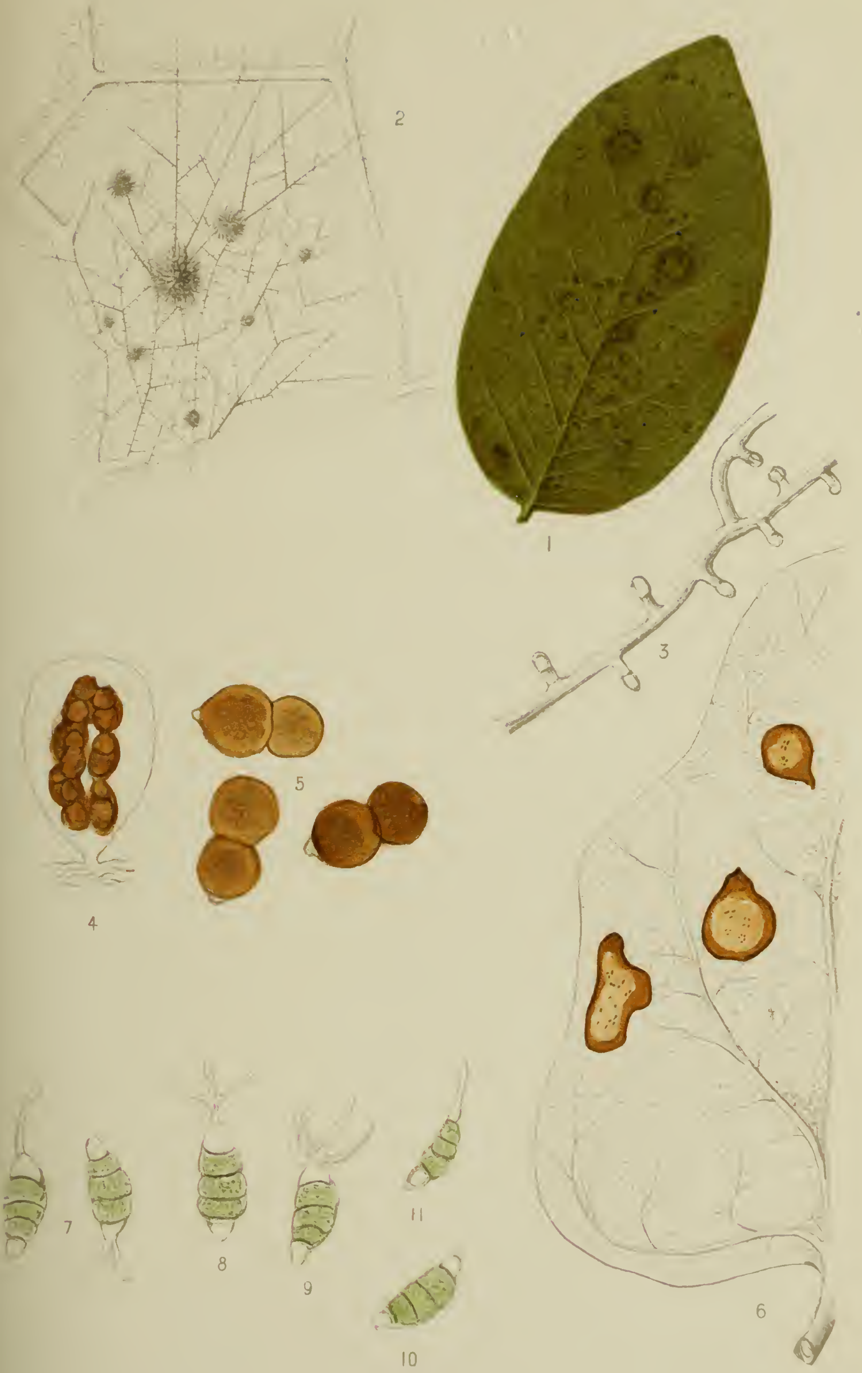
1. A host leaflet, natural size.
2. A portion of the same enlarged, showing the mycelium and perithecia.
3. Hypha, showing the alternate hyphopodia.
4. An ascus.
5. Sporidia.

(See page 285.)

PESTALOZZIA COCCOLOBÆ E. & E.

6. A leaf of the host.
7-10. Sporules.
11. Sporule, lateral view.

(See page 286.)

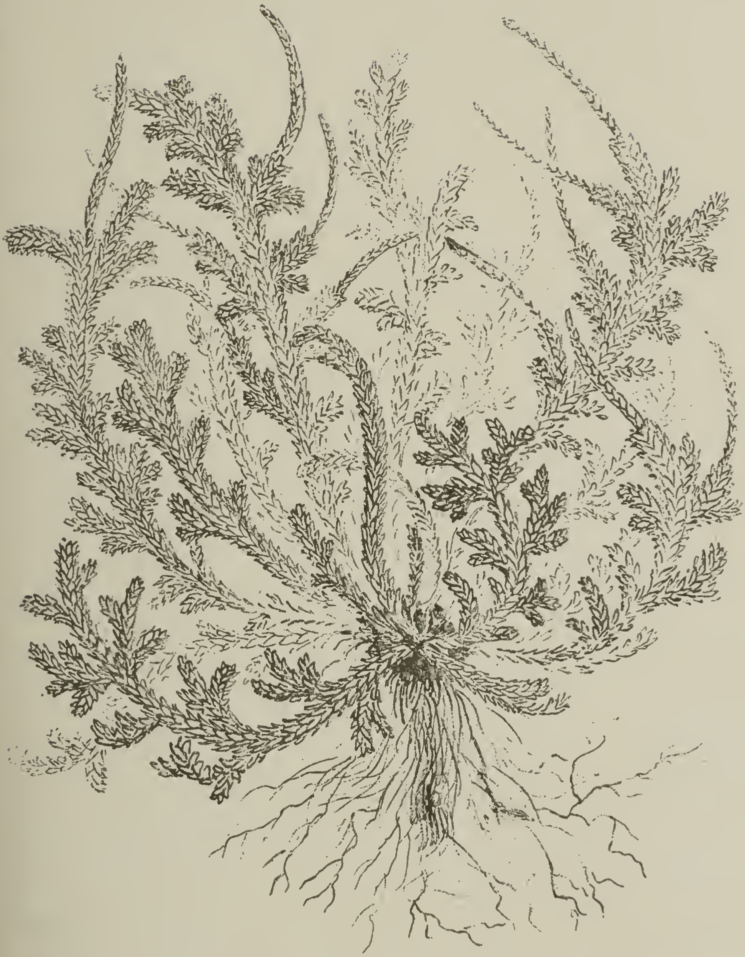


NEW YUCATAN FUNGI

PL. X. SELAGINELLA LONGISPICATA UNDERW.

Whole plant, natural size.

(See page 287.)



SELAGINELLA LONGISPICATA, Underw.

PL. XI. SETARIOPSIS LATIGLUMIS (VASEY) SCRIBN.

a. Spikelet, showing the second glume and base of the first glume.

b. Spikelet, showing the apex of the first glume, sides of the second, and back of the third glume.

c. Dorsal view of the third glume.

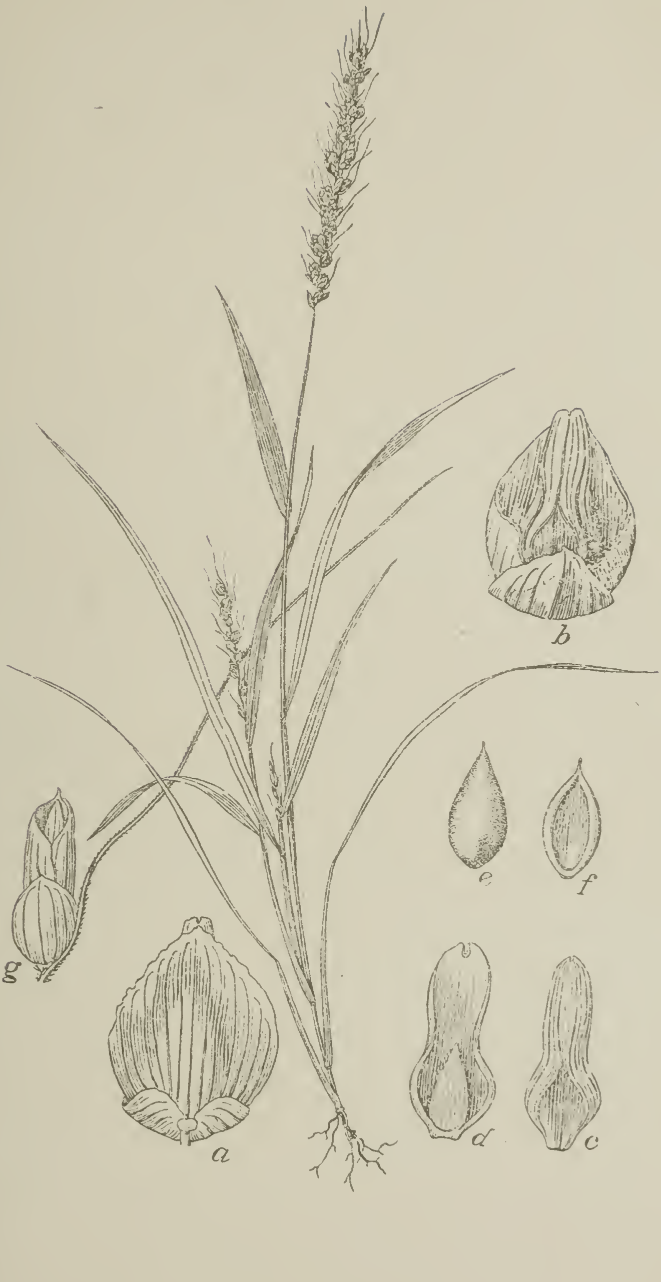
d. Anterior face of the third glume, showing the small palea.

e. Fourth or flowering glume, seen from the back.

f. Anterior view of the same.

g. A young skikelet, showing the awn-like prolongation of the supporting branch.

(See page 289.)

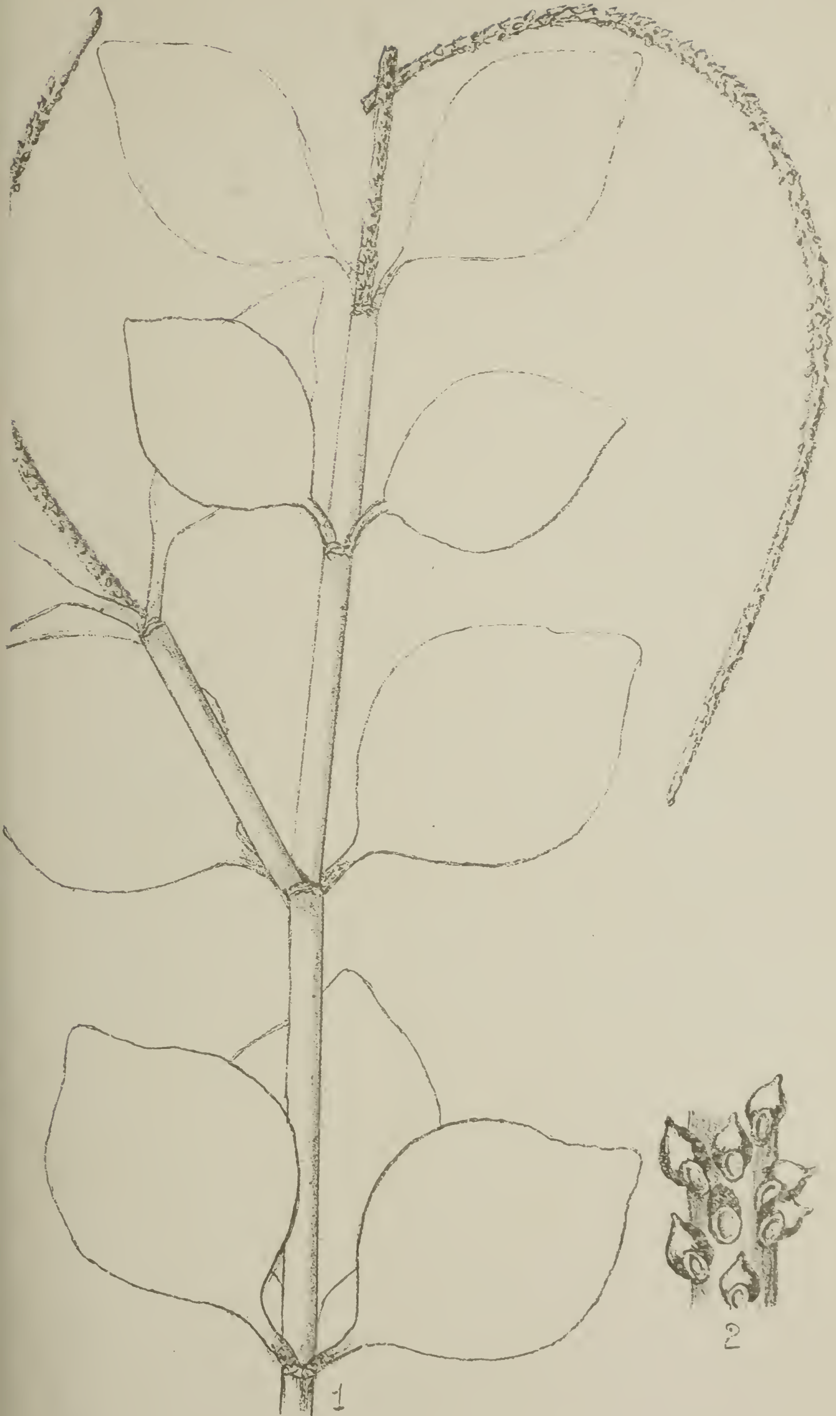


SETARIOPSIS LATIGLUMIS (Vasey), Scribn.

PL. XII. PEPEROMIA GLUTINOSA MILLSP.

1. Upper portion of a stem.
2. Portion of the rachis enlarged.

(See page 293.)

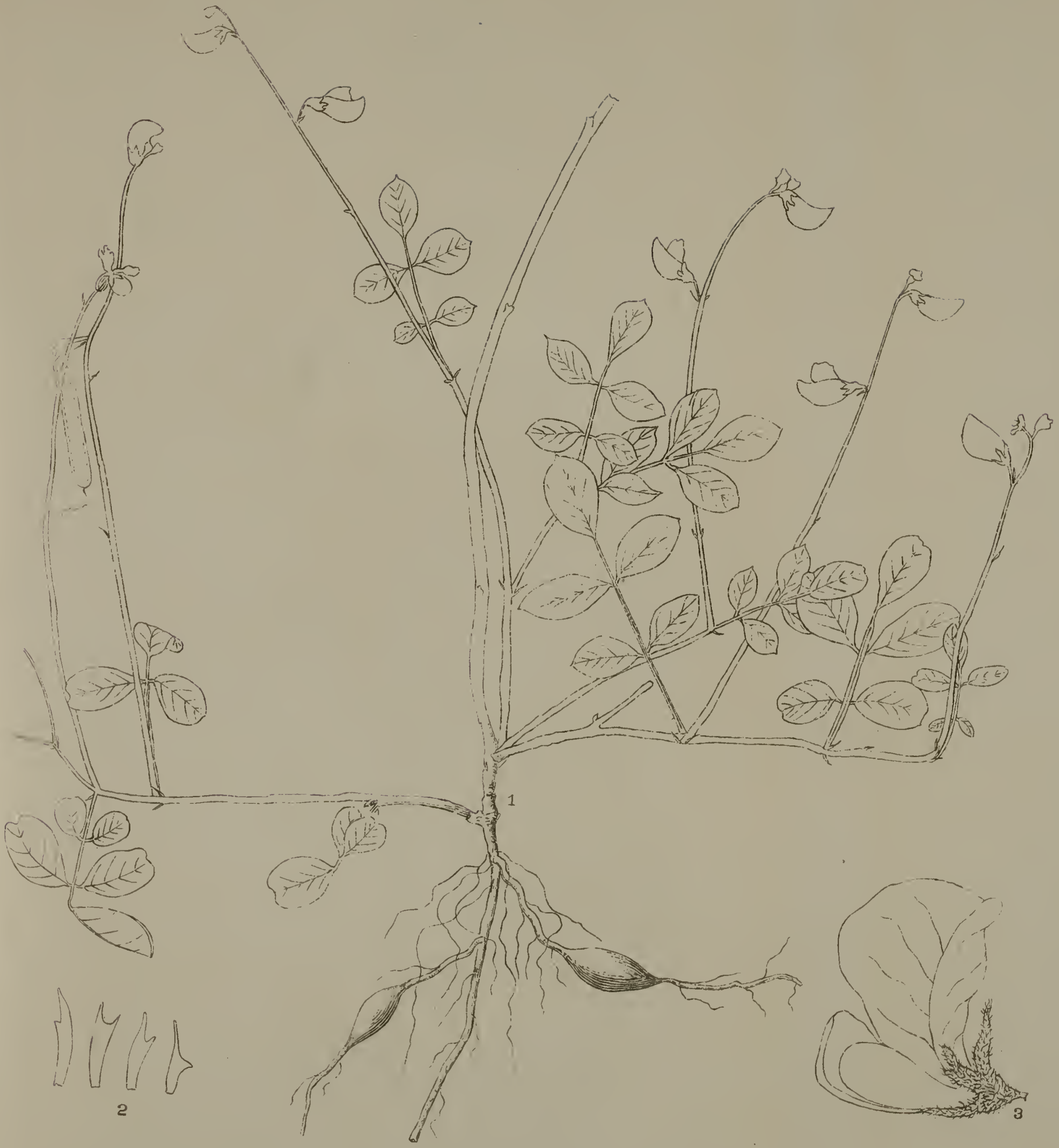


PEPEROMIA GLUTINOSA, Millsp.

PL. XIII. CRACCA GREENMANII MILLSP.

1. Portion of plant natural size.
2. Forms of inner calyx lobes, enlarged.
3. Flower, enlarged.

(See page 299.)

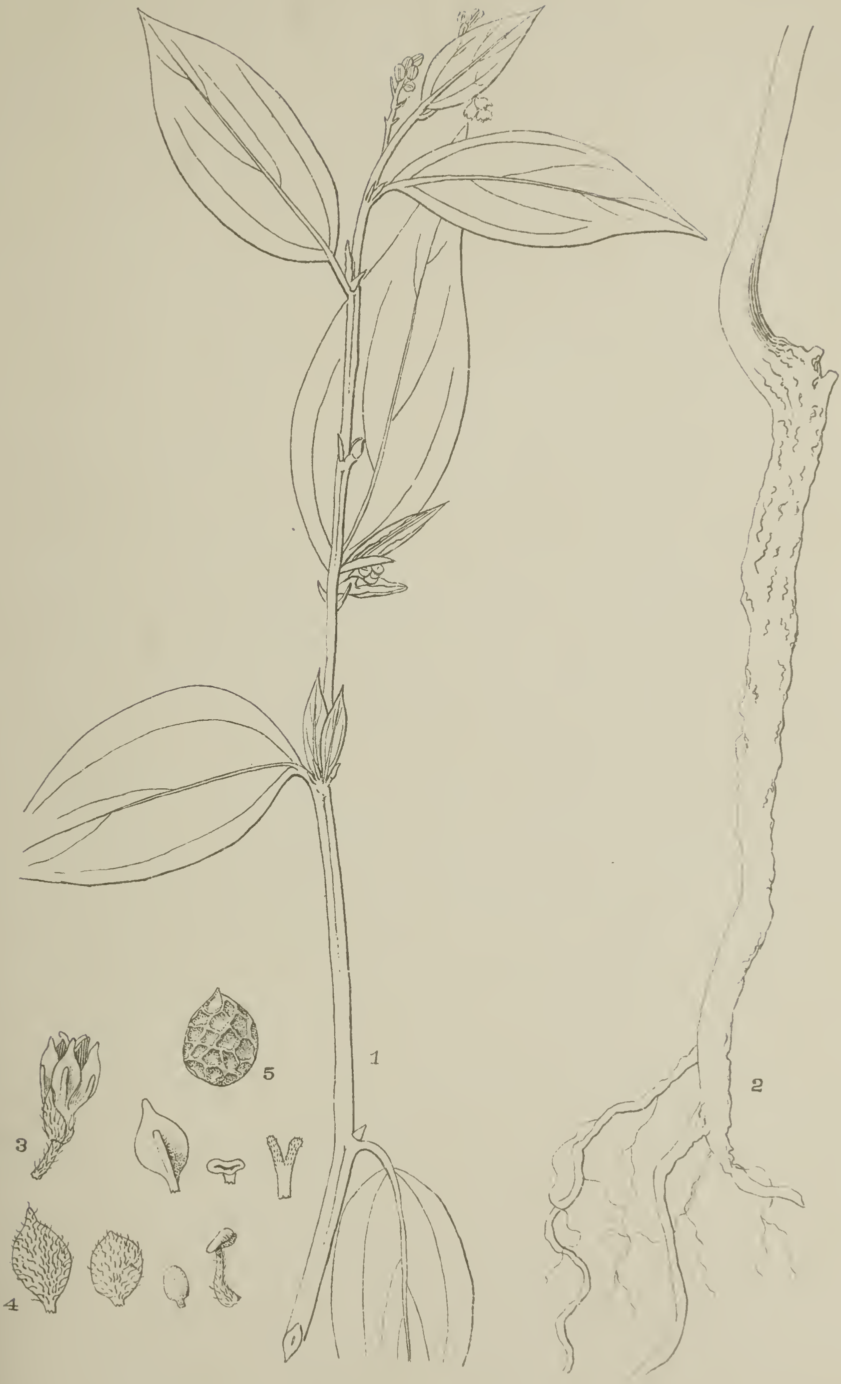


CRACCA GREENMANII, Millsp.

PL. XIV. ARGITHAMNIA TINCTORIA MILLSP.

1. Tip of plant, natural size.
2. Root.
3. Female flower; petal, gland and style.
4. Male sepal; petal, gland and stamen.
5. Seed.

(See page 302.)

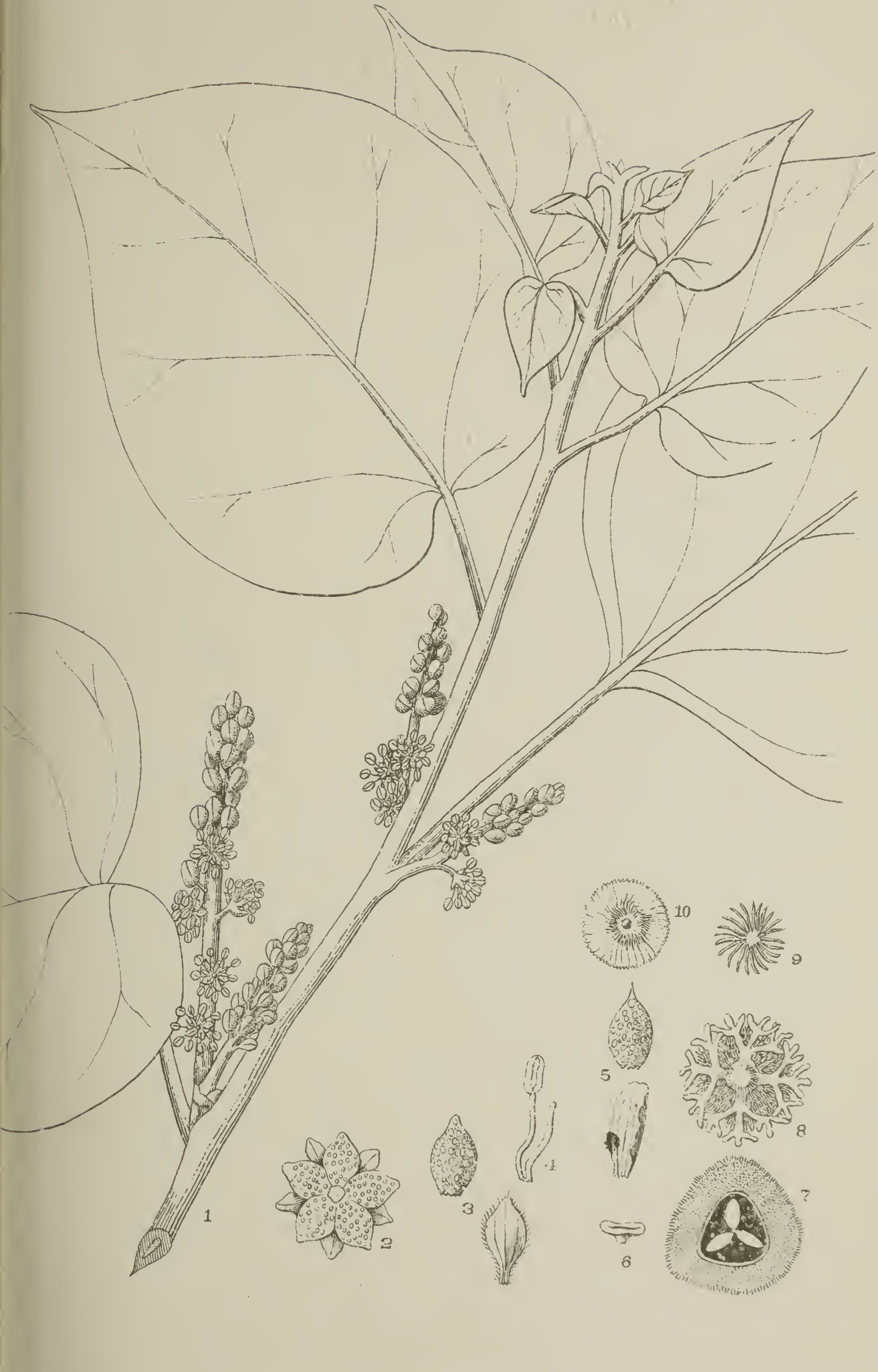


ARGITHAMNIA TINCTORIA, Millsp.

PL. XV. CROTON ARBOREUS MILLSP.

1. Portion of plant, natural size.
2. Male flower, under side, enlarged.
3. Male sepal and petal.
4. Stamen and rudiment.
5. Female sepal and petal.
6. Gland.
7. Ovary in section.
8. Pistil.
9. Hair of ovary, magnified.
10. Lepidote scale of leaf, magnified.

(See page 303.)



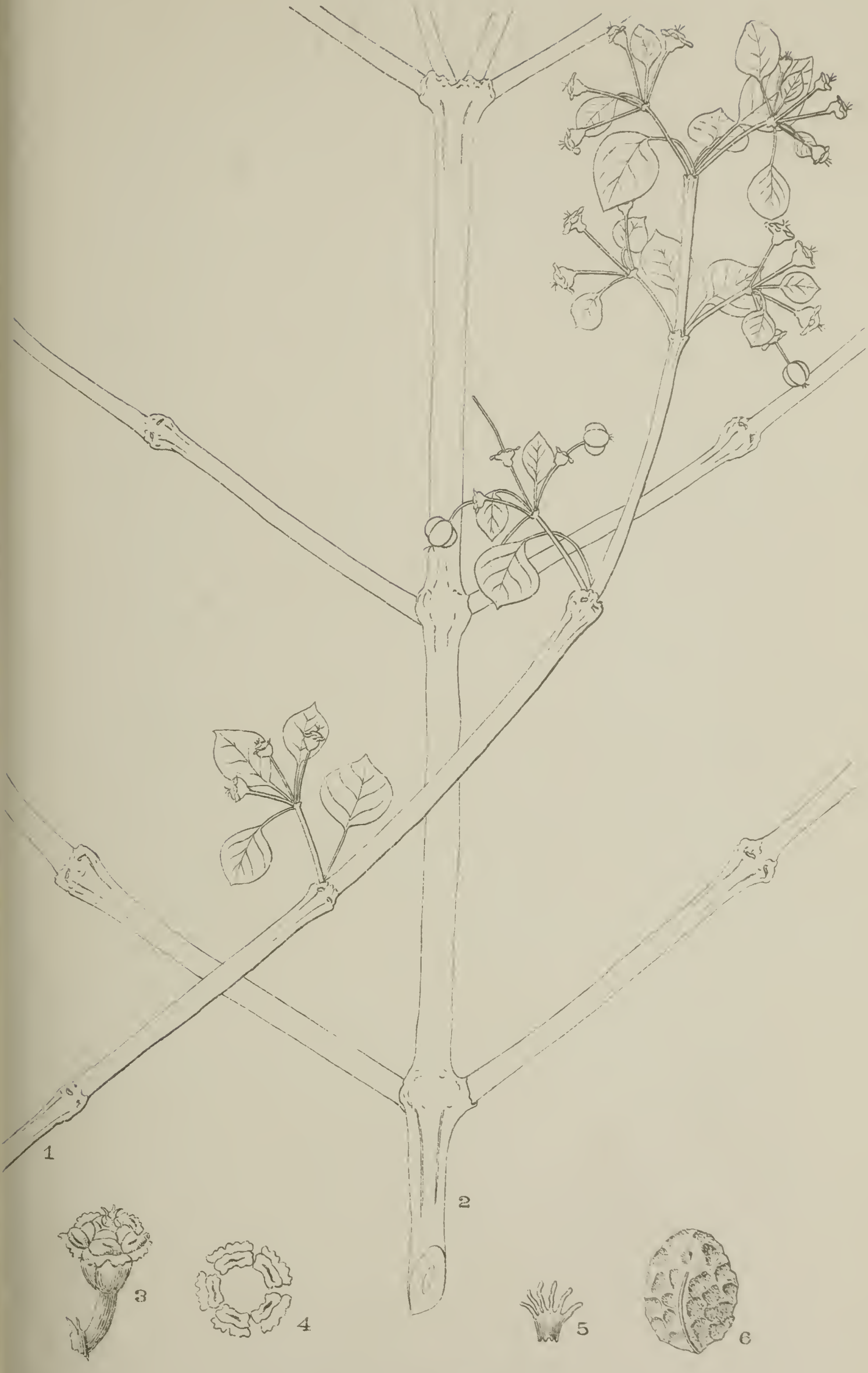
CROTON ARBOREUS, Millsp.

CAREW PEERLESS E

PL. XVI. EUPHORBIA MAYANA MILLSP.

1. End of branchlet, natural size.
2. Portion of a branch.
3. Flower, enlarged.
4. Glands and appendages.
5. Involucral lobe.
6. Seed.

(See page 304.)

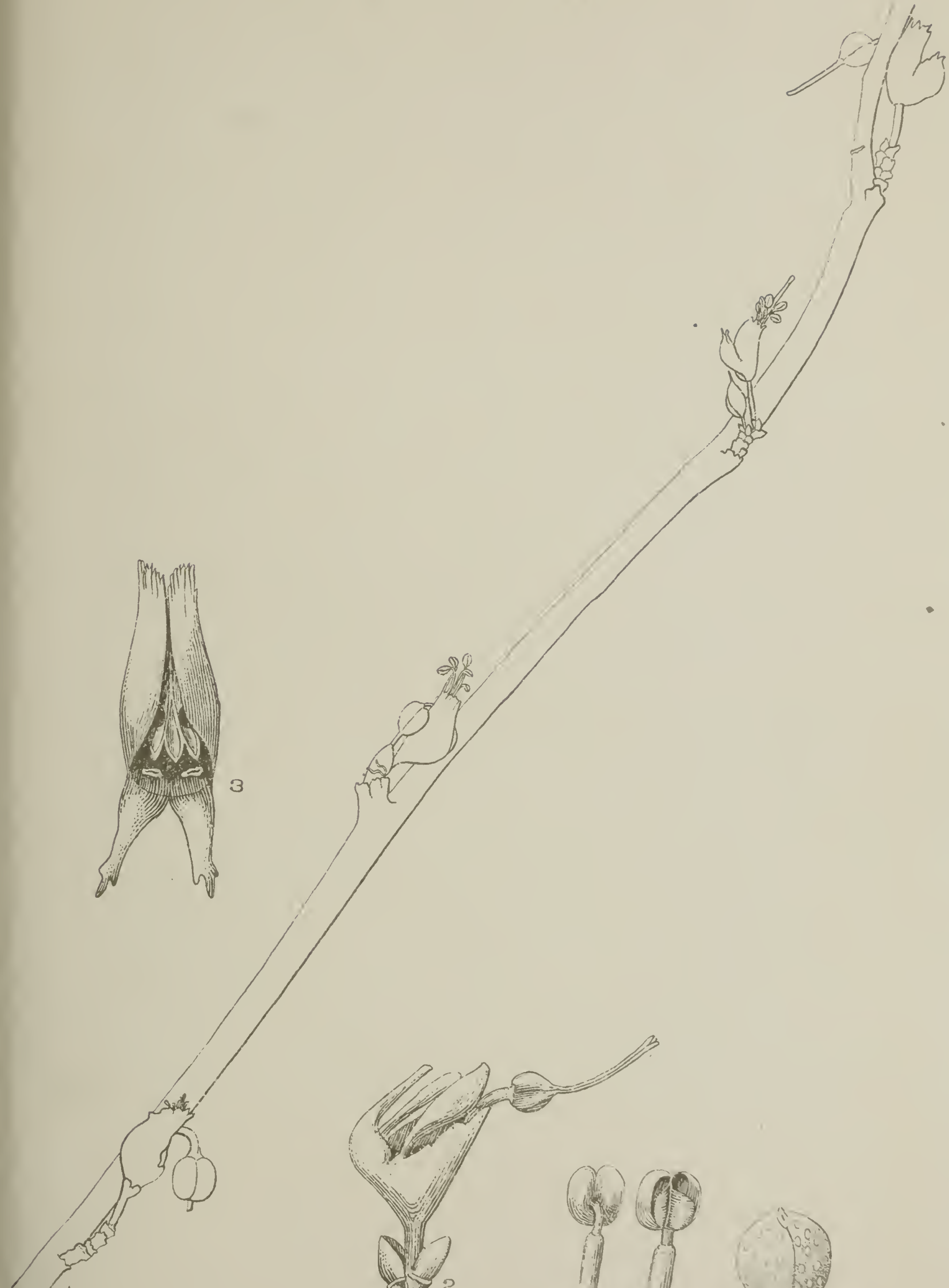


EUPHORBIA MAYANA, Millsp.

PL. XVII. PEDILANTHUS NODIFLORUS MILLSP.

1. Portion of a branch, natural size.
2. Flower, enlarged.
3. Inferior portion of the perianth opened to show position of the glands.
4. Posterior and anterior views of an anther.
5. Seed.

(See page 305.

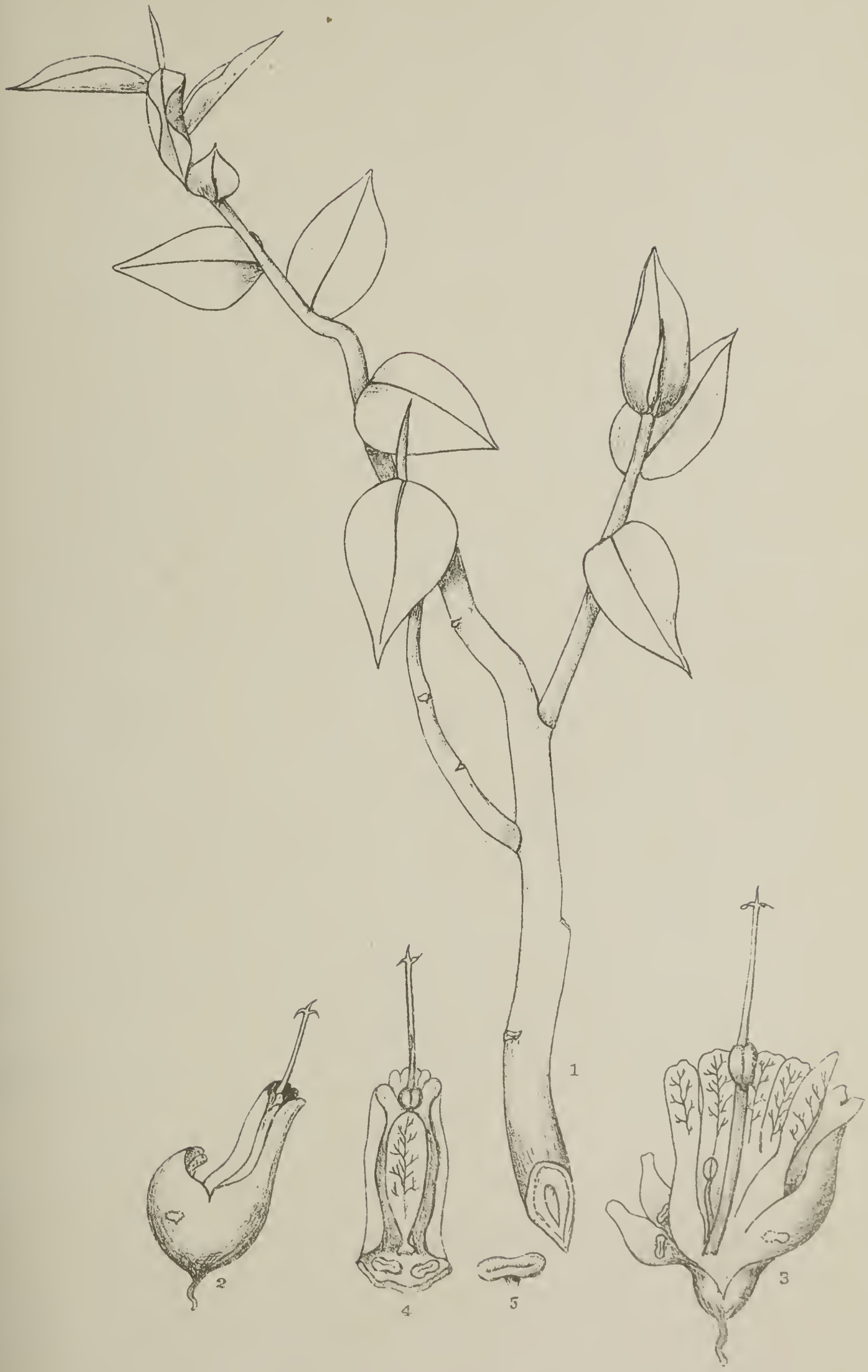


PEDILANTHUS NODIFLORUS, Millsp.

PL. XVIII. PEDILANTHUS ITZÆUS MILLSP.

1. Branch, natural size.
2. Flower, much enlarged.
3. Opened perianth.
4. Corolla tube.
5. Gland.

(See page 305.)

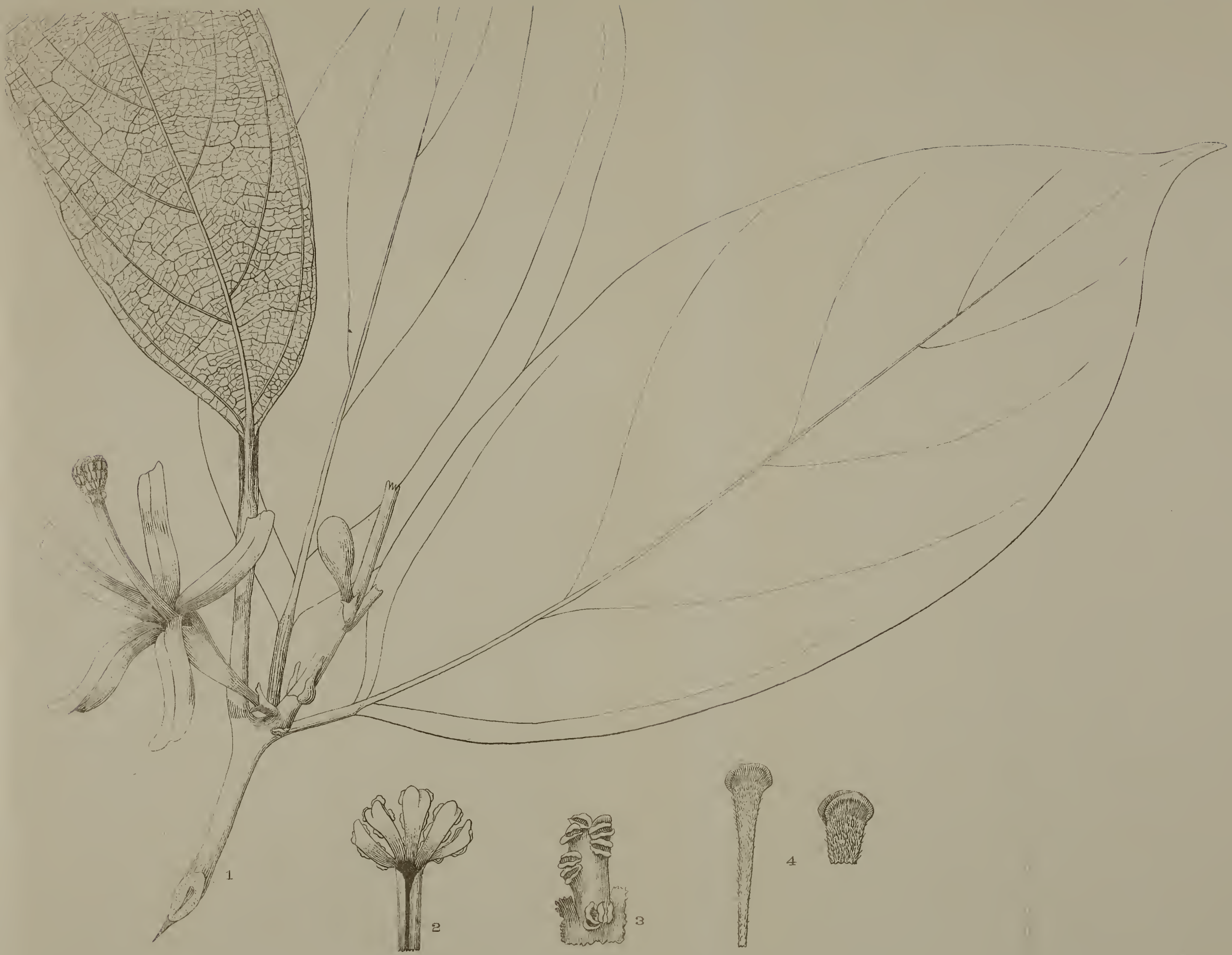


PEDILANTHUS ITZÆUS, Millsp.

PL. XIX. QUARARIBEA FIELDII MILLSP.

1. Tip of branch, natural size.
2. Column of stamens opened, interior view, enlarged.
3. Portion of stamen column, exterior.
4. Style and stigma.

(See page 309.)

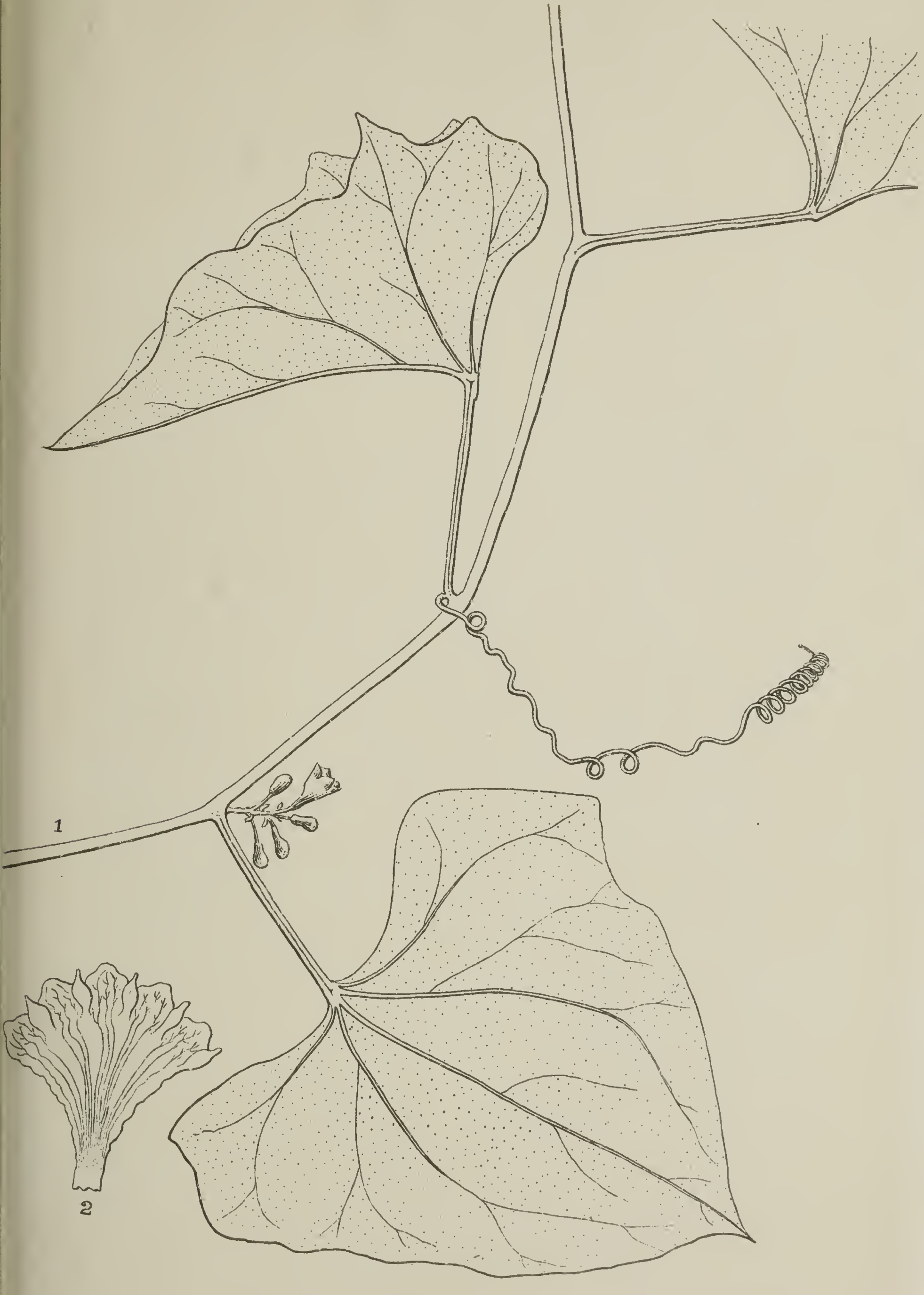


QUARARIBEA FIELDII, Millsp.

PL. XX. CORALLOCARPUS MILLSPAUGHI COGN.

1. Portion of the plant, natural size.
2. Perianth, exterior, enlarged.

(See page 322.)

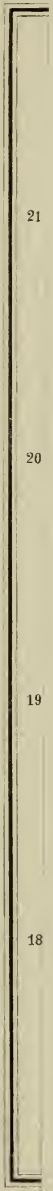


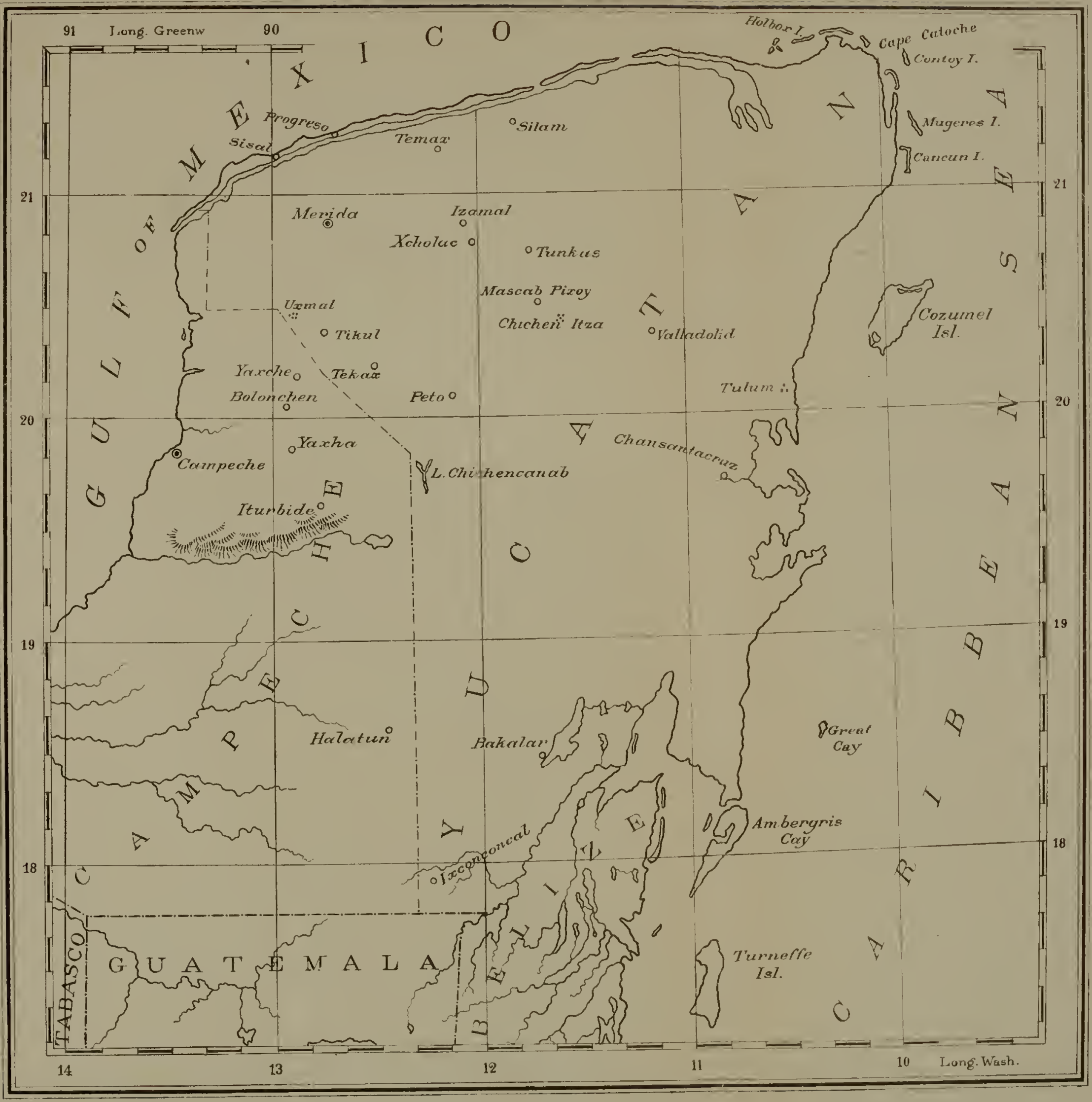
CORALLOCARPUS MILLSPAUGHI, Cogn.

PL. XXI. OUTLINE MAP OF THE PENINSULA OF YUCATAN.

Very little indeed, is known of the peninsula east of the 10th degree of longitude, or south of the 20th degree of latitude (Washington). The whole area of the State of Yucatan north of 19° 30′ is a vast, nearly level, dry plain, having nowhere an altitude much exceeding 100 feet above the sea level.

Pl. XXI. Outline Map of the Peninsula of Yucatan.





Peninsula of Yucatan.

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